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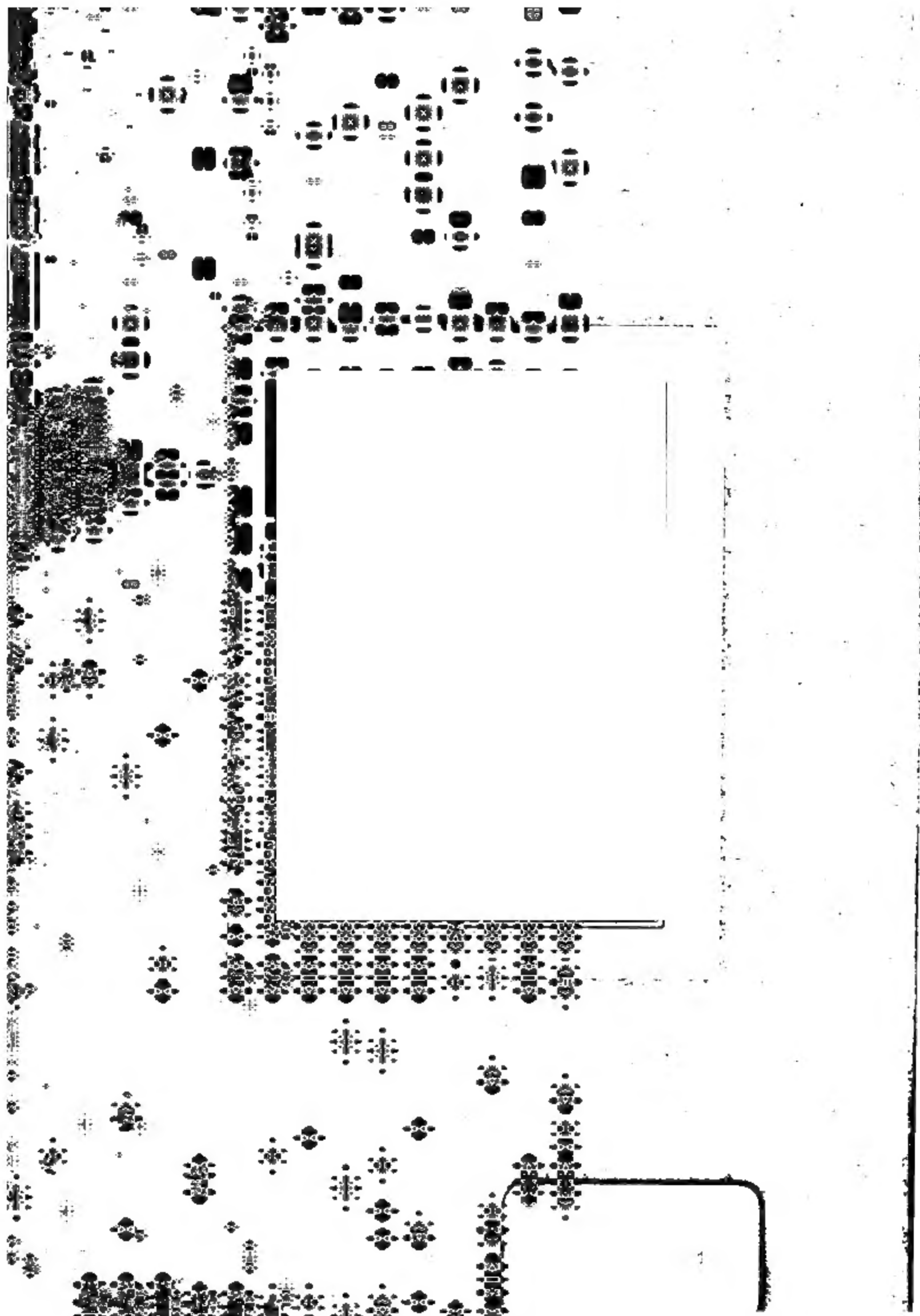
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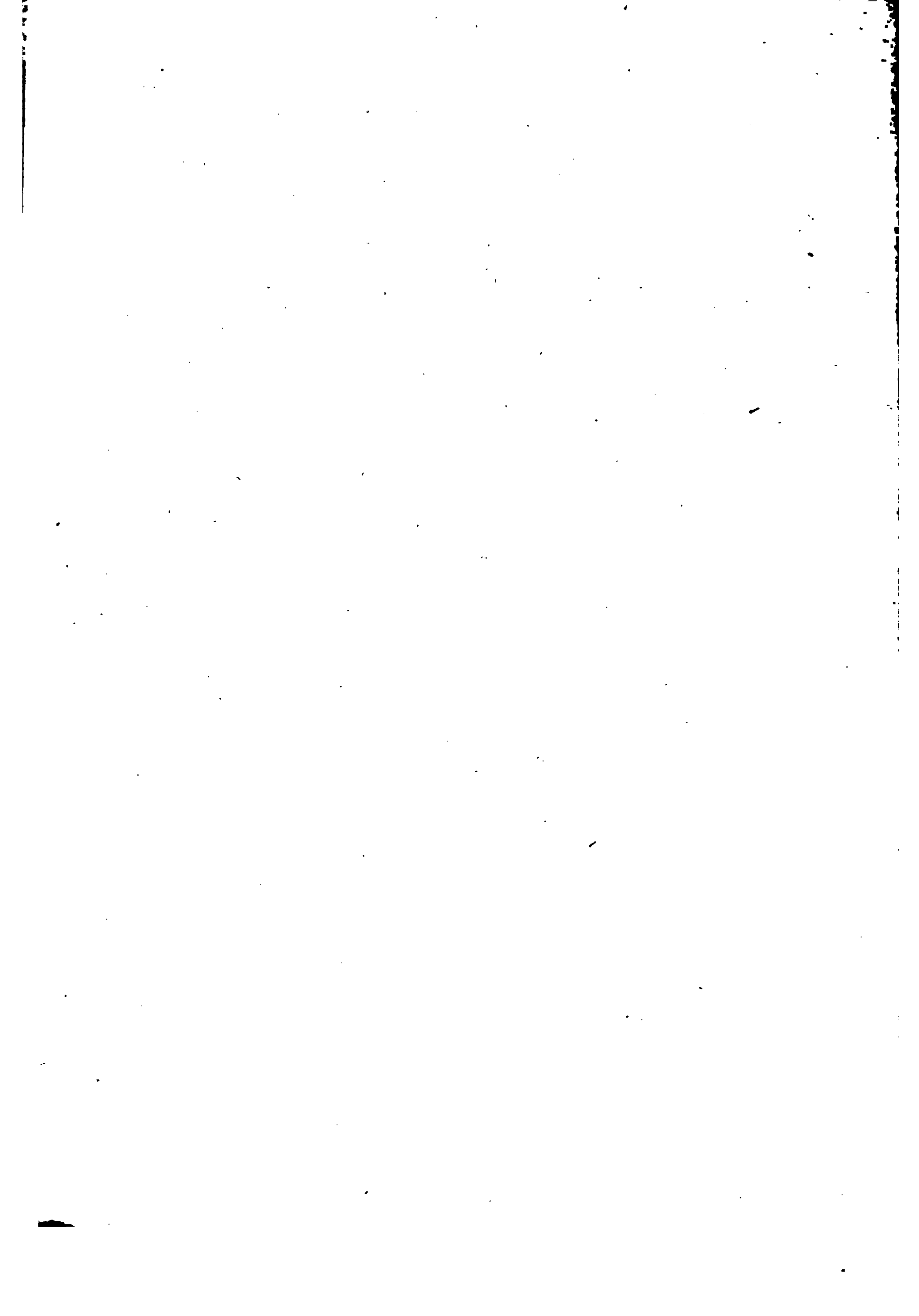
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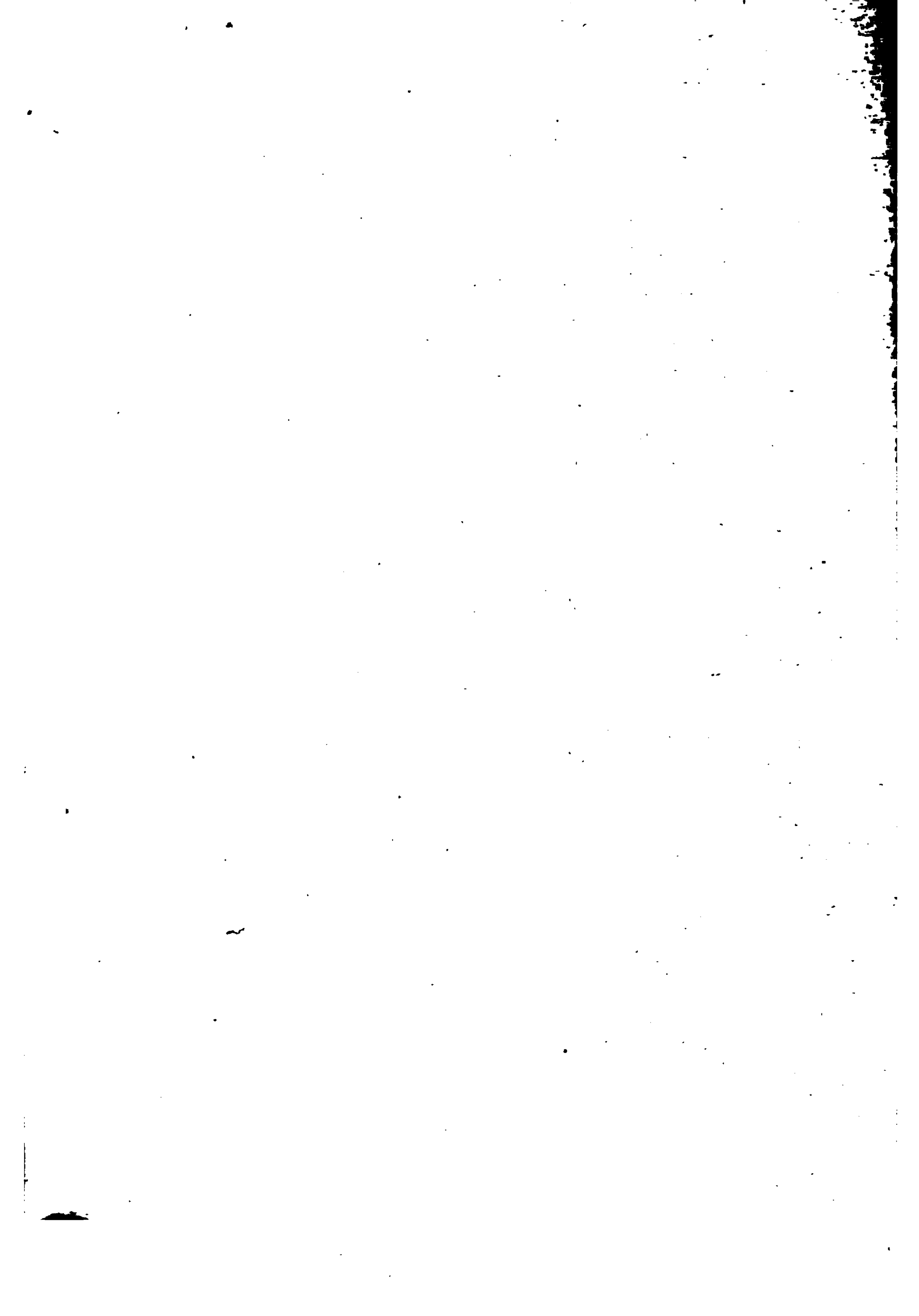
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"Religion, morality and knowledge being necessary to good government and the happiness of mankind, schools and the means of education shall forever be encouraged." Ordinance of 1787.

UNIVERSITY OF MISSOURI

CATALOGUE

SIXTY-FIRST REPORT OF THE CURATORS TO THE GOVERNOR
OF THE STATE

1902-1903

COLUMBIA, MISSOURI

M'

Calendar for 1903 and 1904

1903																											
JAN.							FEB.							MARCH.							APRIL.						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
4	5	6	7	1	2	3	1	2	3	4	5	6	7	1	2	3	4	5	6	7	5	6	7	1	2	3	4
11	12	13	14	15	16	17	8	9	10	11	12	13	14	8	9	10	11	12	13	14	12	13	14	15	16	17	18
18	19	20	21	22	23	24	15	16	17	18	19	20	21	15	16	17	18	19	20	21	19	20	21	22	23	24	25
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10	11	12	13	14	15	16	7	8	9	10	11	12	13	12	13	14	15	16	17	18	9	10	11	12	13	14	15
17	18	19	20	21	22	23	14	15	16	17	18	19	20	19	20	21	22	23	24	25	16	17	18	19	20	21	22
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1904																											
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							30	31																			

UNIVERSITY CALENDAR

AT COLUMBIA.

1903—June 1, Monday Summer Session Begins
September 8, 4, 5, 7 Entrance Examinations
September 8, Tuesday All Departments Open
November 25, Wednesday, 4 p. m., to November 30,
Monday, 8:30 a. m. Thanksgiving Holidays
December 15, Tuesday Semi-Annual Meeting of the Curators
December 28, Wednesday, at 12:30 p. m., to } Christmas Holidays
1904—January 5, Tuesday, at 8:30 a. m. }
January 9, Saturday Memorial Day
January 25-30 Mid-Year Examinations
February 2, Tuesday Second Semester Begins
April 7 Quarterly Meeting of the Curators
May 23-28 Final Examinations
May 28, Saturday Stephens Medal Contest
May 29, Sunday Baccalaureate Sermon
May 30, Monday Class Day
May 31, Tuesday Alumni and Phi Beta Kappa Day
May 31, Tuesday Annual Meeting of the Curators
June 1, Wednesday Commencement Day

AT ROLLA.

1903—September 19 and 21, Saturday and Monday,
9 a. m. Entrance Examinations
September 22, Tuesday First Term Begins
October 1 Quarterly Meeting of the Curators
November 26, Thursday Thanksgiving Holiday
December 28, Wednesday, at 12 m. Christmas Holidays Begin
1904—January 4, Monday Second Term Begins
March 21, Monday Third Term Begins
June 8, Friday Commencement

The Board of Curators and the Faculty reserve the right, without further notice, to modify any announcement made in this catalogue, if circumstances should render such change necessary, and they will be bound by it in any event only for the session following the date of publication.

REPORT OF THE BOARD OF CURATORS

COLUMBIA, Mo., May 1, 1903.

To His Excellency, A. M. DOCKERY, *Governor of Missouri*:

SIR:—I have the honor herewith to present the Annual Catalogue of the University of Missouri, giving a review of the work for 1902-1903, and outlining the programme for the scholastic year of 1903-1904.

RESIGNATIONS, APPOINTMENTS, AND PROMOTIONS.

At Columbia: Late in the spring and during the summer of 1902 there were the following resignations, appointments, and promotions at Columbia:

In the summer of 1902, Mr. E. B. Smith resigned his position as Instructor in Shopwork and he has been succeeded by Mr. A. C. Duncan. In the spring of 1902, Dr. Charles Thom, Instructor in Botany, left the employment of the University. B. M. Duggar, Ph. D., was appointed Professor of Botany from 1 September, 1902, as was reported in the last catalogue. In the spring of 1902, Mr. Richmond Laurens Hawkins resigned as Instructor in Romance Languages and in his place Miss Grace Williams was appointed from 1 September, 1902. In the summer of 1902, Dr. W. H. Turner, who for several years had been acting Commandant of Cadets, resigned. For several months Dr. Turner had been acting as Alumni Recorder also. Captain W. D. Chitty has been detailed by the War Department to be Commandant at Columbia from 1 September, 1902. The position of Alumni Recorder has not yet been filled. Late in the summer of 1902, Miss Helen Bender resigned her position as Instructor in Physical Training and she has been succeeded by Miss Ida Mann.

In the summer of 1902, Dr. W. S. Drewry was granted a furlough without salary for one year. We have appointed Dr. Jonas Viles, Instructor in History. In the summer of 1902, Dr. Isidor Loeb, formerly Professor of History, was made Professor of Political Science and Public Law, and N. M. Trenholme, Ph. D., was made Assistant Professor (in charge) of History. It having proved necessary to appoint an Instructor in Athletics for men, our choice fell upon Mr. Floyd Tuttle; and we have been obliged to give Professor Hetherington the services of Mr. C. B. Davis, as a clerk. These appointments date from 1 September, 1902. In the same summer Dr. C. M. Jackson was promoted to the rank of Professor of Anatomy at a salary of \$2,000 a year, dating from January 1, 1903. Mr.

Peter Potter was appointed Assistant in Anatomy from 1 September, 1902. The staff of assistants to the library has been increased by the appointment of several persons, at salaries ranging from \$30 to \$40 a month. In no other way is it possible to secure a good Card Catalogue, without which the Library is robbed of much of its value to students.

In the summer of 1902, Max W. Myer, M. D., was appointed Professor of Obstetrics and Gynaecology to take effect from 1 September, 1902. He had taken here his Bachelor's degree before taking his medical degree. Late in the summer of 1902, Mr. C. W. Hodsdon was appointed Instructor in Mechanical Engineering from 1 September, 1902. In the spring of 1902, Miss Mary Iglehart resigned as stenographer to the President of the University and Mr. Theodore Pfeifer served as her successor for several weeks. The position was filled from early September to Christmas by Miss Mable Olmstead and since Christmas it has been filled by Miss Rosa C. Menard. In June, 1902, Mr. L. M. Defoe, formerly Assistant Professor of Mathematics, was made Professor of Mechanics in Engineering, to take effect 1 September, 1903. Late in the summer of 1902, Dr. R. F. Rand resigned as House Surgeon of the Parker Memorial Hospital and was succeeded from 1 September, 1902, by Dr. C. A. Good.

In the summer of 1901, Miss Ada E. Payne was elected Head Nurse of the Parker Memorial Hospital, and Principal of the Nurses' Training School. This position she resigned, in the spring of 1902. Her successor has been Miss Jean T. Kay, who, in turn, was succeeded after 1 January, 1903, by Miss Sophie Evans. In the spring of 1902, we employed for several months, Mr. J. H. Ridgway, as taxidermist, to put in order the Zoological Museum for which an appropriation was made by the Forty-first General Assembly. Early in 1902, as was said in our last Catalogue, Mr. T. I. Mairs resigned his position as Assistant in Agriculture to the Experiment Station. In his place, E. L. Shaw, B. S., University of Ohio, has been appointed. In the spring of 1902, the Board created the office of Mechanician to the University at a salary of \$60 a month. This service has been grievously needed for years, and it is economical. We can repair a large amount of apparatus at less expense here than we can send it to the manufacturers for repairs. The expense is paid out of the Laboratory fund. The office was held for some months by Mr. J. C. Jansen, who has been succeeded by the present incumbent, Mr. H. H. Bullard. A number of assistants, at salaries ranging from \$150 to \$250 a year, have been appointed, because it was impossible to do the teaching without their aid. For a list of these, we would refer you to the general list of teachers and officers.

At Rolla: As was said in the last Catalogue, Elmer J. McCaustland.

M. C. E., Cornell University, succeeded Elmo G. Harris as Professor of Civil Engineering, and continued in this position until June, 1902, when he accepted a post at Cornell University. Ira W. McConnell, C. E., Cornell University, was elected Professor of Civil Engineering in June, 1902, but was prevented by sickness from entering upon the duties of the position for some months. His place was temporarily filled by Professor Elmer D. Harsbarger, C. E., Cornell University. Professor McConnell has regained his health and is now at his post doing full work and rendering excellent service.

In June, 1902, James C. Draper, B. S., who had been serving in the School of Mines as Instructor in Shopwork and Drawing, was made Instructor in Assaying and Mineralogy, and Joseph Henry Bowen was elected Instructor in Shopwork and Drawing.

THE FACULTY.

In administering the affairs of the University one thing challenges the most serious consideration. Changes in the Faculty should never take place except for undoubtedly good reasons. Changes are often inevitable because of our inability to retain in the service of the University the best qualified teachers. Other more favored institutions, with ample resources at command, take from us our experienced, thoroughly trained men. The loss thus sustained in late years has been incalculable. The retention of valuable men is all-important. Enlarged resources should be placed at the command of the Board, enabling us to compete with any institution in the country in securing and retaining the best talent for our University. This view has special reference to the salaries of head professors. A great state like Missouri can not afford to cripple the work of its University or lessen the opportunity of the youth of the commonwealth. Only by supplying in the Faculty teachers of the best ability can we attract the young men of Missouri to the University and prevent them from leaving home to find higher advantages.

The salaries paid in our University are low. The stronger Universities all pay larger salaries. If we are to retain our best Professors it is necessary that they should receive somewhat larger salaries. It is idle to say that good men are easy to get. Experience shows that it is very hard to get thoroughly good men. Every time that a good Professor leaves we incur an immense risk of getting a weaker man in his place. It is wise policy when we have secured a thoroughly good Professor to hold him if two or three hundred dollars more of salary will do it.

The Faculties at Columbia and at Rolla are more harmonious than they have ever been in the history of the University. Teachers and off-

cers are working in sympathy for the advancement of the Institution.

THE STUDENTS.

Discipline. The discipline up to date in the session of 1902-1903 has been remarkably good at Columbia and Rolla.

Intercollegiate Debates. Students of our University in the last two years have engaged in a number of debates with students of other Colleges and Universities. We are proud to say that they have won in most of the debates in which they have engaged.

Paying One's Own Way. A number of students manage to pay their way at the University by their own exertions. Some of the most distinguished men of Missouri and of other states have done this in former years. The number of such students in the present session (1902-1903) is large. The Y. M. C. A., a student organization, has a committee to canvass the town for work and to distribute it among students needing it. Too much praise can not be given to this body of Christian students and to the teachers and officers of the University for the encouragement that they have given to poor young men in supporting themselves.

Enrollment. The enrollment in the Departments at Columbia and also at Rolla has been very large in this Biennial Period. It is confidently expected that the enrollment will continue to increase at a rapid rate, and that the Forty-third General Assembly will find by June, 1905, at Columbia and Rolla combined more than 2,000 students. In the session of 1901-1902, the students at Columbia and Rolla came from fifty states, territories, and foreign countries. Among foreign countries Canada, Germany, Japan, Cuba, Porto Rico, Mexico, and the Argentine Republic are represented by students. The Argentine Minister at Washington sent to this University five students from that Republic, the sons of prominent persons. They came to study our Missouri system of Agriculture. Among the State Universities we are in enrollment about the seventh.

BUILDINGS AND EQUIPMENT.

Contracts have been let for all the buildings at Columbia and at Rolla for which appropriations were granted by the Forty-first General Assembly. Some of these buildings have been completed and are in daily use and all of them will be ready before the close of the present session.

Special appropriations granted for books and equipment, and for various other purposes have already been expended, and in my opinion they have been expended economically and judiciously.

Dormitory for Women. The University has a dormitory for women. It is named "Read Hall" in honor of President Daniel Read, under whose

administration women were first admitted to the University. The legislature gave for this building \$35,000. With this sum we have erected a handsome stone building which will be ready for use by September, 1903.

THE UNIVERSITY AND THE PUBLIC SCHOOLS.

The Summer Schools. The Summer School at Columbia opens early in June and continues for twelve weeks. It is intended primarily for high school teachers. Courses in English, Latin, French, German, Greek. Freehand Drawing, History, Biology, Physics, Chemistry, Shopwork and Drawing, Agriculture, Horticulture, and Mathematics are given. It is gratifying to know that this school is growing in favor year by year and that many of the leading teachers of the State have been among its students. In this biennial period the enrollment has been 914.

A Summer School for Miners and Prospectors was maintained in the summer of 1901 at Rolla. The enrollment was 15.

In the summer of 1901 the University maintained a branch Summer School for seven weeks at Bethany, in northwest Missouri. There were enrolled 72 teachers. In the summer of 1901 we maintained a Summer School at Ava, Missouri, for seven weeks, in which 83 teachers were enrolled. In the summer of 1902 a Summer School was maintained by the University at Mountain Grove, in which 68 teachers were enrolled. The University receives every spring a large number of applications from various parts of Missouri to establish branch Summer Schools. The 1,152 teachers that we have taught in our Summer Schools in the present biennial period are teaching with better instruction, because of their residence at the University, 50,000 children in the public schools of Missouri every winter; and this good work goes on so long as these teachers continue in their profession.

Growth of Approved High Schools. The growth of our Approved Schools has been remarkable. The number is now 118 and nearly 100 more are seeking places on our list. Eleven years ago there were not 6 secondary schools, public or private, in Missouri that could have met our present conditions for approval. Nine-tenths of those approved are public high schools. With the growth of these schools in quality has come a corresponding growth in enrollment. Many of them have increased their enrollment a hundred per cent in the last six years. It is fair to assert that five times as many students are enrolled in our public high schools in 1903 as were enrolled in 1892; and furthermore the high schools in which they are enrolled in 1903 are far better than those of 1892. It should be remembered that this marvelous growth of high schools has been largely the work of the University, whose influence

should not be measured by its own enrollment but by what it has done for the public high schools as well. Tens of thousands of students that do not come to the University are receiving a far better education than would have been possible to them had not the influence of the University reached their local high schools. Through the high schools to reach for good the district schools is the next step forward.

State Aid to High Schools. It would be a Godsend to education in Missouri if in some way the State would give *stimulative aid* to high schools in counties that really need aid. If it be allowed us to make suggestions we would respectfully offer the following. It is a matter that deeply concerns the University.

(1) State aid should not be extended to a school district that is able to support a high school of its own—say to a district in which the assessed valuation of property is a million dollars or more.

(2) State aid should not be offered to a district in which the people are taxing themselves for school purposes less than seventy-five cents on the hundred dollars. To those who tax themselves in this sum the State might well offer \$800 or \$400, this minimum amount being increased where the rate of taxation is eighty cents on the hundred dollars, and again increased where it is eighty-five cents, and so on up to a dollar.

(3) To encourage three or more school districts to unite for the support of a common high school as provided for in an existing statute, a fixed amount of State aid might be offered without reference to the assessed valuation of property. There would be no danger that rich districts might unite with poor districts and thus profit by State aid, for the loss to a rich district by uniting with two or three poor ones would be greater than the aid received. The State could well afford to put a premium upon such a union of rural districts for the maintenance of a common high school.

(4) It might well be specified that where State aid is extended to any high school the teaching shall gradually become industrial as well as classical, literary, and scientific. Any high school profiting by State aid might well be required to give in time instruction in Agriculture, Horticulture, Entomology, Mechanic Arts, and Domestic Economy, as well as in the subjects usually taught in first-class high schools. The richer portions of Missouri can afford in their own interest to lift up education in the poorer sections. Few things would be more profitable to the University itself. Hence these suggestions.

STATE BUREAUS AND COMMISSIONS AT COLUMBIA.

Every department of the State Government which has for its object

scientific, philanthropic, or statistical work should have free of rent, offices and, if necessary, laboratories, in the buildings of the University at Columbia. They should have easy access to its libraries and laboratories. Their officers might occasionally lecture before our students. They should co-operate with the allied departments of the University and receive help from them.

The State Board of Health receives free quarters in the University and has access to our libraries and laboratories. It is an aid to us in our work and we can help the Board greatly.

In our Engineering building should be located any Bureau or Commission that may be established for Good Roads, or for State engineering work.

The State Board of Charities and Correction might well be quartered in our Academic Hall close to our departments of Political Economy and Sociology which should receive aid from it and give aid to it in return.

The State Fish Commission should have at least a station at Columbia in connection with our department of Biology and our Experiment Station. We could render it valuable aid and receive some aid in return.

The Commission for Pure Food and Drugs should have its headquarters here.

The fact that Columbia is by railroad only thirty-five miles from Jefferson City renders this arrangement for the first time feasible. The lodging of such Bureaus and Commissions in our buildings would be a great inspiration to our students, who come from nearly every county in Missouri.

A distinguished Missourian has well said: "Somewhere in the Southwest, and in the near future, a splendid University will rise—one that will shine resplendent above all rivals. Illinois, Iowa, Kansas, Nebraska, and Texas, are all fighting for this distinction. When success is once achieved it will be hard to wrest the laurel from the victor. Unquestioned supremacy once obtained is apt to be permanent. Missouri holds the key to the situation, and, if we but utilize our advantage, we can win the prize. If we are to succeed, the people must take hold of the University with a firm but affectionate hand and lift it right up beyond the reach of danger, and send it forward with that confident strength that overwhelms opposition and makes victory sure."

THE SCHOOL OF MINES AND METALLURGY.

(at Rolla.)

This branch of the University has had a most successful year. It

has a larger enrollment and a better average grade of students than it has ever had in its history. The interest in it of the people and of the press of the State is rapidly growing. Prospectors have sent to its Professor of Geology, during the past calendar year, many thousand specimens of minerals and ores for analysis and identification. That such a school is justified in a great mining State like Missouri has become apparent, and its friends are to be congratulated upon the fact that it is now becoming one of the leading institutions of its kind in America.

Very respectfully yours,

JOHN D. VINCIL,

President of the Board of Curators.

CORPORATION

THE BOARD OF CURATORS

WALTER WILLIAMS, Columbia	}	Term expires Jan. 1, 1903.
J. F. GMELICH, Boonville		
D. A. McMILLAN, Mexico		
GARDINER LATHROP, Kansas City	}	Term expires Jan. 1, 1907.
ARCHIBALD McVEY, Chillicothe		
B. G. THURMAN, Lamar		
JOHN D. VINCIL, St. Louis	}	Term expires Jan. 1, 1909.
CAMPBELL WELLS, Platte City		
C. B. FARIS, Caruthersville		

OFFICERS OF THE BOARD

JOHN D. VINCIL	President
GARDINER LATHROP	Vice-President
J. G. BABB	Secretary
R. B. PRICE	Treasurer

THE EXECUTIVE BOARD AT COLUMBIA

WALTER WILLIAMS, Chairman	Columbia
CAMPBELL WELLS	Platte City
J. F. GMELICH	Boonville

THE EXECUTIVE COMMITTEE, SCHOOL OF MINES

JOHN D. VINCIL, Chairman	St. Louis
D. A. McMILLAN	Mexico
B. G. THURMAN	Lamar
CHAS. L. WOODS, Secretary.	HENRY WOOD, Treasurer (office at Rolla).

THE BOARD OF VISITORS

R. N. BODINE	Paris
F. M. MANSFIELD	Hartville
J. L. BUCHANAN	California
CHARLES RAY	Cassville
H. C. DUNCAN	Osborn

FACULTY OF THE UNIVERSITY

Names are printed in the several groups in the order of appointment.
Those marked with a * are names of officers or members of the
Faculty of the School of Mines and Metallurgy at Rolla, Missouri.

PRESIDENT OF THE UNIVERSITY

RICHARD HENRY JESSE, LL. D.,

President, and Professor of Ancient and Medieval History.

Student, University of Virginia, 1873-5, and part of 1878; Dean of the Academic Department, University of Louisiana, 1878-84; Professor of Latin, Tulane University, 1884-91; studied in Europe part of 1885 and of 1890; LL. D., Tulane University, 1891; President of the University of Missouri, 1891—.

PROFESSORS

†PAUL SCHWEITZER, Ph. D., LL. D.,

Professor of Agricultural Chemistry, and Chemist to the Experiment Station.

Student under Schneider, Sonnenschein and H. Rose at Berlin, 1858-60; Chemist to the Soda Ash Works, Schoeningen, 1860-2; Chemist to the Chemical Works at Detmold, 1862-3; Assistant Professor of Chemistry, Polytechnic Institute, Philadelphia, 1864-6; Assistant in School of Mines, Columbia College, 1866-72; Ph. D., University of Goettingen, 1869; LL. D., University of Missouri, 1897; Professor in the University of Missouri, 1872—.

ANDREW WALKER MCALESTER, A. B., M. D., LL. D.,

Professor of Surgery, Dean of the Medical Faculty, and Superintendent of the Parker Memorial Hospital.

A. B., University of Missouri, 1865, M. D., 1866, A. M., 1868; studied abroad, 1873 and 1885; Professor of Surgery, University of Missouri, 1873-80, LL. D., 1897; President State Board of Health, 1901—; Professor of Surgery and Dean of Medical Faculty, University of Missouri, 1880—.

WOODSON MOSS, M. D., LL. D.,

Professor of the Practice of Medicine and Therapeutics.

M. D., University of Missouri, 1874, Instructor in Medicine and Demonstrator of Anatomy, 1875-8, Professor of Anatomy and Demonstrator, 1878-88, Professor of Anatomy and Physiology, 1888-91; studied

†Absent during session of 1902-3.

in Europe, 1890; Professor of Anatomy and the Practice of Medicine, University of Missouri, 1891-1900, LL. D., 1901, Professor of the Practice of Medicine and Therapeutics, 1900—.

EDWARD ARCHIBALD ALLEN, Litt. D.,

Professor of English Language and Literature.

Student, Randolph-Macon College, 1861-2; University of Virginia, 1866-8; Professor of Latin and Greek, Farmville College (Va.), 1873-81; Professor of English and Modern Languages, Central College, 1881-5; Litt. D., Washington and Lee University, 1890; Professor of English, University of Missouri, 1885—.

JAMES AULL YANTIS, LL. B.,

Professor of Law.

LL. B., University of Missouri, 1875, Professor of Law, 1887—.

MILLARD LEWIS LIPSCOMB, A. M.,

Professor of Physics.

A. M., Bethany College (West Va.), 1874; Instructor, William and Mary College, 1874-5, Professor, 1875; Professor of Physical Science, South Kentucky College, 1879-89; Professor of Physics, University of Missouri, 1889—.

†**ALEXANDER MARTIN, A. B., LL. D.,**

Professor of Law, and Dean of the Law Faculty.

A. B., University of Michigan, 1855, A. M., 1858; LL. B., Harvard University, 1858; LL. D., University of Missouri, 1890, Professor of Law and Dean of Law Faculty, 1889-1908.

WILLIAM GWATHMEY MANLY, A. M.,

Professor of Greek Language and Literature.

Student, University of Virginia, 1882-4; Assistant Head Master, McCabe's University School, 1884-6; Professor of Greek, Mercer University, 1886-9; A. M., Harvard University, 1890; American School for Classical Studies at Athens, and traveling in Greece, 1900; Professor of Greek, University of Missouri, 1890—.

JOHN CARLETON JONES, A. B., Ph. D.,

Professor of Latin Language and Literature, and Dean of the Academic Faculty.

A. B., Westminster College, 1879, A. M., 1882, Ph. D., 1891, Professor of Latin, 1880-2; Graduate Student, Johns Hopkins University, 1882-8; Assistant Professor of Latin and Greek, University of Missouri, 1888-7, Associate Professor of Latin, 1887-91; Student, University of Leipzig and at Rome, 1895-6; Professor of Latin, University of Missouri, 1891—, Dean of Academic Faculty, 1900—.

†Died, December 15, 1902.

JOHN WALDO CONNAWAY, D. V. S., M. D.,

Professor of Veterinary and Comparative Medicine, and Veterinarian to the Experiment Station.

D. V. S., Chicago Veterinary College, 1890; M. D., University of Missouri, 1891; Student, Johns Hopkins University, 1894-5; Professor of Physiology, University of Missouri, 1891-7; Professor of Physiology and Veterinarian to the Experiment Station, 1897-1900; Professor of Comparative Medicine and Veterinarian to the Experiment Station, 1900—.

JOHN DAVISON LAWSON, B. C. L., LL. D.,

Professor of Law, and Dean of the Law Faculty.

B. C. L., Trinity College, 1875; Editor *Central Law Journal*, 1876-81; Practiced Law, 1876-85; Judge Civil Court, 1886-91; LL. D., University of Missouri, 1892, Professor of Law, 1891—, Dean of Law Faculty, 1903—.

JOHN PICKARD, A. B., Ph. D.,

Professor of Classical Archaeology and History of Art, and Curator of the Museum of Classical Archaeology.

A. B., Dartmouth College, 1883, A. M., 1886; Student, University of Leipzig, 1889, University of Berlin, 1890, 1895, American School of Classical Studies in Athens, 1890-1, University of Munich, 1891-2; Ph. D., University of Munich, 1892; Student, American School of Classical Studies in Rome, 1901-2; Professor of Classical Archaeology, University of Missouri, 1892—.

FRANK THILLY, A. B., Ph. D.,

Professor of Philosophy.

A. B., University of Cincinnati, 1887; Student, University of Berlin, 1887-9, University of Heidelberg, 1889-91; A. M., Ph. D., University of Heidelberg, 1891; Fellow in Philosophy, Cornell University, 1891-2, Instructor in Logic and the History of Philosophy, 1892-3; Professor of Philosophy, University of Missouri, 1893—.

JOHN CHARLES WHITTEN, B. S., M. S., Ph. D.,

Professor of Horticulture, and Horticulturalist to the Experiment Station.

B. S., South Dakota Agricultural College, 1891, M. S., 1899; Instructor in Horticulture and Horticulturalist (in charge) to the Experiment Station, South Dakota Agricultural College, 1892; Student, Cornell University, 1892; Assistant in Horticulture, Missouri Botanical Garden, 1893-4; Ph. D., University of Halle-Wittenberg, 1903; Professor of Horticulture and Horticulturalist to the Experiment Station, University of Missouri, 1894—.

HENRY JACKSON WATERS, B. S. A.,

Dean of the College of Agriculture and Mechanic Arts, and Director of the Experiment Station.

B. S. A., University of Missouri, 1886; Assistant Secretary, Missouri

State Board of Agriculture, 1886-8; Assistant in Agriculture to the Missouri Experiment Station, 1888-91; Professor of Agriculture, Pennsylvania State College and Agriculturalist to the Experiment Station, 1892-5; Dean of the College of Agriculture and Mechanic Arts, and Director of the Experiment Station, University of Missouri, 1895—.

†BENJAMIN FRANKLIN HOFFMAN, B. L., M. L.,

Professor of Germanic Languages.

B. L., University of Missouri, 1884, M. L., 1888, Assistant Professor of Modern Languages, 1887-92; Student, Paris and Munich, 1892-3; Professor of Modern Languages, University of Louisiana, 1893-5; Student, University of Chicago, Summer Session, 1895, 1896; Professor of Germanic Languages, University of Missouri, 1895—.

FREDERICK BLACKMAR MUMFORD, B. S., M. S.,

Professor of Agriculture, and Curator of the Agricultural Museum.

B. S., Michigan Agricultural College, 1891, M. S., 1893; Assistant in Michigan Agricultural Experiment Station, 1891-5; Assistant Professor of Agriculture, Michigan Agricultural College, 1893-5; Student, University of Leipzig, 1900, Zurich, 1901; Professor of Agriculture, University of Missouri, 1895—.

JOHN MOORE STEDMAN, B. Sc.,

Professor of Entomology, and Entomologist to the Experiment Station.

B. Sc., Cornell University, 1888; Instructor in Invertebrate Zoology and Entomology, and Entomologist to the Experiment Station, 1888-90; Biologist to the United States Department of Agriculture, 1890-1; Professor of Biology, Trinity College, 1891-3; Professor of Biology, Alabama Polytechnic Institute, Agricultural and Mechanical College, and Biologist to the Experiment Station, 1893-5; Professor of Entomology, and Entomologist to the Experiment Station, University of Missouri, 1895—.

RAYMOND WEEKS, A. B., Ph. D.,

Professor of Romance Languages.

A. B., Harvard University, 1890, A. M., 1891; Instructor in French, University of Michigan, 1891-3; Traveling Fellow, Harvard University (Paris and Berlin), 1893-5; Ph. D., Harvard University, 1897; Professor of Romance Languages, University of Missouri, 1895—.

WILLIAM GEORGE BROWN, B. S., Ph. D.,

Professor of Chemistry.

Miller Scholar, University of Virginia, 1875, B. S., 1877; Professor of Chemistry, East Tennessee University, 1877-8; Professor of General and Agricultural Chemistry, University of Tennessee, 1878-80, Professor of Chemistry and Mineralogy, 1880-3; Student, University of Heidelberg, 1880-1; Instructor in Chemistry, University of Virginia, 1883-5; Morgan Fellow, Harvard University, 1884; Professor of Chemistry and Physics.

†Absent during session of 1902-3.

South Carolina Military Academy, 1885-6; Professor of Chemistry, Washington and Lee University, 1886-94; Ph. D. (Hon.), University of North Carolina, 1889; Assistant Chemist, U. S. Department of Agriculture, 1894-6; Professor of Chemistry, University of Missouri, 1896—.

JOHN RUTLEDGE SCOTT, A. B., A. M.,

Professor of Elocution.

A. B., Ohio University, 1864, A. M., 1867; studied with James E. Murdoch, 1871; Instructor in Elocution, Washington University, 1877-88; Instructor in Vocal Culture, Johns Hopkins University, 1893-7; Professor of Elocution, University of Missouri, 1897—.

*GEORGE EDGAR LADD, A. B., Ph. D.,

Director of School of Mines and Metallurgy, and Professor of Geology and Mining.

A. B., Harvard University, 1887, A. M., 1888; Assistant, United States Geological Survey, 1887-9; Assistant Geologist, Geological Survey of Texas, 1889; Chief Assistant, Geological Survey of Missouri, 1889-91; Assistant in Geology, Harvard University, 1891-3, Instructor in Geology, Summer School, 1892-3, 1896-7, Ph. D., 1894; Student, German Universities, 1894-5; Chemist and Assistant Geologist, Geological Survey of Georgia, 1896-7; Director and Professor of Geology and Mining, University of Missouri (School of Mines), 1897—.

*GEORGE REINALD DEAN, B. S., C. E.,

Professor of Mathematics.

C. E., University of Missouri (School of Mines), 1890, B. S., 1891. Assistant in Mathematics, 1890-1; Professor of Mathematics, Maryville Seminary, 1891-2; Professor of Mathematics, Coe College (Ia.), 1892-3; Assistant in Leander McCormick Observatory, University of Virginia, 1893-4; Teacher of Mathematics, Central High School, Kansas City, Mo., 1894-7; Professor of Mathematics, University of Missouri (School of Mines), 1897—.

JOHN NELSON FELLOWS, B. S., A. M.,

Professor of Mathematics.

B. S., University of Missouri, 1892, M. S., 1893; Student, Harvard University, 1893-5, A. M., 1894; Student, University of Goettingen, 1895-6; Professor of Mathematics and Physics, Peekskill Military College, 1896-8; Professor of Mathematics, University of Missouri, 1898—.

ISIDOR LOEB, B. S., LL. B., Ph. D.,

Professor of Political Science and Public Law.

B. S., University of Missouri, 1887, M. S., LL. B., 1893, Tutor in History, 1892-4; University Fellow in Jurisprudence, Columbia University, 1894-5; Assistant Professor of History, University of Missouri, 1895-9; Student, University of Berlin, 1899-1900; Professor of History, University of Missouri, 1899-1901; Ph. D., Columbia University, 1901; Professor of History and Administration, University of Missouri, 1901-2. Professor of Political Science and Public Law, 1902—.

CURTIS FLETCHER MARBUT, B. S., A. M.,

Professor of Geology and Mineralogy, and Curator of the Geological Museum.

B. S., University of Missouri, 1889; A. M., Harvard University, 1894; Instructor in Geology and Mineralogy, University of Missouri, 1895-7, Assistant Professor of Geology and Mineralogy, 1897-9; studied in Europe, 1899-1900; Professor of Geology and Mineralogy, University of Missouri, 1899—.

HOWARD BURTON SHAW, B. C. E., A. M.,

Professor of Electrical Engineering.

A. B., University of North Carolina, 1890, B. C. E., 1891, Instructor in Mathematics, 1889-90, Instructor in Mathematics, Surveying, and Drawing, 1891-3; in Engineering Work with Phoenix Iron Company, 1892; A. M., Harvard University, 1894; Assistant in Electrical Engineering Laboratory, Lawrence Scientific School, Harvard University, 1894-6; in Engineering Work with Consolidated Traction Company, 1896; Assistant Professor of Electrical Engineering, University of Missouri, 1896-9, Professor of Electrical Engineering, 1899—.

JOSEPH MARTIN WHITE, A. B., A. M.,

Professor of Pedagogy.

Graduate, Kirksville Normal School, 1874; Superintendent, Louisiana (Mo.) Schools, 1875-7; Carrollton (Mo.) Schools, 1878; A. B., University of Michigan, 1881, A. M. (Hon.), 1901; Superintendent, Carthage (Mo.) Schools, 1885-95; School Examiner, University of Missouri, 1897-9; Professor of Pedagogy, 1899—.

***AUSTIN LEE McRAE, B. S., S. D.,**

Professor of Physics.

B. S., University of Georgia, 1881; S. D., Harvard University, 1886; U. S. Signal Service (Electrical Work), 1882-9; U. S. Signal Service (Missouri State Weather Service), and Assistant Professor of Physics, University of Missouri, 1889-91; Professor of Physics, University of Missouri (School of Mines), 1891-4; Associate Professor of Physics, University of Texas, 1894-6; Consulting Engineer, St. Louis, 1896-9; Professor of Physics, University of Missouri (School of Mines), 1899—.

GEORGE LEFEVRE, A. B., Ph. D.,

Professor of Zoology, and Curator of the Zoological Museum.

A. B., Johns Hopkins University, 1891, Fellow, 1894-5, Bruce Fellow, 1895-7, Ph. D., 1896, Assistant in Zoology and Embryology, 1897-8; Instructor in Zoology, Marine Biological Laboratory, Woods Hole, Mass., 1898-9; Professor of Zoology, University of Missouri, 1899—.

CHARLES A. ELLWOOD, Ph. B., Ph. D.,

Professor of Sociology.

Ph. B., Cornell University, 1896; Student, University of Chicago,

1896-7, University of Berlin, 1897-8; Fellow in Sociology, University of Chicago, 1898-9, Ph. D., 1899; General Secretary, Charity Organization Society, Lincoln, Nebraska, 1899-1900; Instructor in Sociology, University of Nebraska, 1899-1900; Professor of Sociology, University of Missouri, 1900—.

CHARLES WILSON GREENE, A. M., Ph. D.,
Professor of Physiology and Pharmacology.

A. B., Leland Stanford Jr., University, 1892, A. M., 1893, Instructor in Physiology, 1893-6; Instructor in Zoology, Marine Biological Laboratory, Woods Hole, Mass., 1896, 1897; Fellow in Physiology, Johns Hopkins University, 1897-8, Ph. D., 1898; Assistant Professor of Physiology, Leland Stanford Jr., University, 1898-1900; Professor of Physiology and Pharmacology, University of Missouri, 1900—.

MAX MEYER, Ph. D.,
Professor of Experimental Psychology.

Ph. D., University of Berlin, 1896; Research Work, Psychological Laboratory, University of Berlin, 1896-8; Research Work, Clark University, 1899-1900; Professor of Experimental Psychology, University of Missouri, 1900—.

CLARK WILSON HETHERINGTON, A. B.,
Professor of Physical Training, and Director of Gymnasiums and Athletics.

A. B., Leland Stanford Jr. University, 1895, Instructor, Encina Gymnasium, 1893-6; Anthropologist and Director of Physical Training, Whittier State School, 1896-8; Fellow in Psychology, Clark University, 1898-9, Fellow and Assistant in Psychology, 1899-1900; Professor of Physical Training and Director of Gymnasiums and Athletics, University of Missouri, 1900—.

FREDERICK PUTNAM SPALDING, C. E.,
Professor of Civil Engineering.

C. E., Lehigh University, 1880; Member of Engineer Corps, Southern Pacific Railway, 1880-2; Assistant Engineer, Mississippi River Improvements, 1882-6 and 1888-90; Instructor in Civil Engineering, Lehigh University, 1886-8; Engineer in Charge of Street Extensions, Washington, D. C., 1890-1; Assistant Professor of Civil Engineering, Cornell University, 1891-8; Contracting Engineer, Bethlehem, Pa., 1898-1900; Professor of Civil Engineering, University of Missouri, 1900—.

JESSE ELIPHALET POPE, B. S., M. S.,
Professor of Economics and Finance.

B. S., University of Minnesota, 1895, M. S. 1897; Superintendent, Monticello Schools, 1896-7; Instructor in History, University of Minnesota, 1897-8; Student, Columbia University, 1897-1900, Fellow in Economics, 1898-1900, Honorary Fellow, 1900; Professor of Economics

and Finance, New York University, 1900-1; Professor of Economics and Finance, University of Missouri, 1901—.

FREDERICK HANLEY SEARES, B. S.,

Professor of Astronomy, and Director of the Lows Observatory.

B. S., University of California, 1895, Fellow in Astronomy, 1895-6, Instructor in Astronomy, 1896-8, Graduate Student, 1898-9; Student, University of Berlin, 1899-1900, University of Paris, 1900-1; Professor of Astronomy, University of Missouri, 1901—.

***VICTOR HUGO GOTTSCHALK, B. S., M. S.,**

Professor of Chemistry.

B. S., University of Missouri (School of Mines), 1898; Assistant U. S. Assayer, Kansas City, Mo., 1898-9; Assistant in Chemical Department, Marion-Sims Medical College, 1899; Assistant in Chemistry, University of Missouri (School of Mines), 1899-1900, Instructor in Chemistry, 1900-1, Acting Professor of Chemistry, 1901; Student, University of Chicago, 1901, Cornell University, 1901-2; Professor of Chemistry, University of Missouri (School of Mines), 1902—.

†LUTHER MARION DEFOE, A. B.,

Professor of Mechanics.

Fellow in Mathematics, University of Missouri, 1891-2; A. B., Harvard University, 1893; Acting Professor of Mathematics, University of Missouri, 1893-4, Assistant Professor of Mathematics, 1894-7, Acting Professor of Mathematics, 1897-8, Assistant Professor of Mathematics, 1898-1902, Professor of Mechanics, 1902—.

ROBERT MONTGOMERY BIRD, A. B., B. S., Ph. D.,

Acting Professor of Agricultural Chemistry, and Chemist to the Experiment Station.

A. B., B. S., Hampden-Sidney College, 1897; Professor of Mathematics and Natural Science, Frederick College, Md., 1898-9; Lecture Assistant, Johns Hopkins University, 1900-1, Ph. D., 1901; Acting Professor of Chemistry, Mississippi Agricultural and Mechanical College, 1901-2; Acting Professor of Agricultural Chemistry and Chemist to the Experiment Station, University of Missouri, 1902-3.

WILLIAM DIXON CHITTY, Captain 4th United States Cavalry,

Professor of Military Science and Tactics, and Commandant of Cadets.

BENJAMIN MINGE DUGGAR, M. S., A. M., Ph. D.,

Professor of Botany.

B. S., Agricultural and Mechanical College, Mississippi, 1891; M. S., Alabama Polytechnic Institute, 1892; A. B., Harvard University, 1894

†Absent during session of 1902-3.

(University Scholar), A. M., 1895 (Townsend Scholar); Botanical Assistant, Illinois State Lab. Nat. Hist., 1895-6; Instructor in Botany, Cornell University, 1896-9, Ph. D., 1898; Student, Universities of Leipzig and Halle, 1899-1900. Naples Biological Laboratory, 1900; Assistant Professor of Botany, Cornell University, 1900-1; Physiologist, Bureau Plant Industry, U. S. Department of Agriculture, 1901-2; Professor of Botany, University of Missouri, 1902—.

ARTHUR MAURICE GREENE, JR., B. S., M. E.,

Professor of Mechanical Engineering.

B. S., University of Pennsylvania, 1893, M. E., 1894; Instructor in Drawing, Graphics, and Kinematics, Drexel Institute, 1894-5; Instructor in Mechanical Engineering, University of Pennsylvania, 1895-1902; Mechanical Engineer, National Export Exposition, Philadelphia, 1899; in charge of Apprentices' School, Franklin Sugar Refinery, Philadelphia, 1893-5; In Engineer's Office, Union Traction Company, Philadelphia, summers of 1893, 1897, and 1898; Professor of Mechanical Engineering, University of Missouri, 1902—.

CLARENCE MARTIN JACKSON, B. S., M. S., M. D.,

Professor of Anatomy and Histology.

B. S., University of Missouri, 1898, M. S., 1899, M. D., 1900, Fellow in Biology, 1897-9, Instructor in Anatomy, 1899-1900, Assistant Professor (in charge) of Anatomy and Histology, 1900-2, Professor of Anatomy and Histology, 1902—.

***IRA WELCH McCONNELL, C. E.,**

Professor of Civil Engineering.

C. E., Cornell University, 1897; Engineering Work, 1897; U. S. Navy Yard, New York, 1898; Contractor, 1898; Instructor in Civil Engineering, Cornell University, 1898-1900; Instructor in Summer School of Surveying, Columbia University, 1899; Engineering Superintendent, 1900-2; Professor of Civil Engineering, University of Missouri (School of Mines), 1903—.

WALTER McNAB MILLER, B. Sc., M. D.,

Professor of Pathology and Bacteriology.

B. Sc., Ohio State University, 1885; Professor of Natural Science, University of Nevada, 1887-9; Professor of Anatomy, Physiology, and Geology, University of Nevada, 1889-99; M. D., Cooper Medical College, San Francisco, 1895; Bacteriologist and Pathologist, Nevada Agricultural Experiment Station, 1896-9; Student, Post-graduate Medical Department, University of California, 1896, Johns Hopkins Medical School, 1899-1900, Harvard University Medical School, 1900, University of Leipzig, 1900-1, German University of Prague, 1901-2; Professor of Pathology and Bacteriology, University of Missouri, 1902—.

MAX WASHINGTON MYER, A. B., M. D.,

Professor of Gynaecology and Obstetrics.

A. B., University of Missouri, 1897; M. D., Marion-Sims College of Medicine, 1899; Student, University of Strassburg, 1900, Berlin, 1901; Volunteer-Assistant in the Koenigliche Frauenklinik, Munich and Elisabeth Hospital (Gynaecologic pavilion), Vienna, 1901-2; Professor of Gynaecology and Obstetrics, University of Missouri, 1902—.

GUY L. NOYES, M. D.,

Professor of Diseases of the Eye and Ear.

M. D., University of Vermont, 1894; M. D., University of Michigan, 1901, Assistant in Ophthalmology, 1901, Demonstrator of Ophthalmic and Aural Surgery, 1902; Professor of Diseases of the Eye and Ear, University of Missouri, 1902—.

GLEN LEVIN SWIGGETT, A. B., A. M., Ph. D.,

Acting Professor of Germanic Languages.

A. B., University of Indiana, 1888, A. M., 1891; Student, Johns Hopkins University, 1889-90, 1892-3; Instructor in French and German, University of Michigan, 1890-2; Master of Modern Languages, Indianapolis Academy, 1893-5; Professor of German and Spanish, Purdue University, 1895-1900; Student, University of Goettingen, 1898; Ph. D., University of Pennsylvania, 1901; Student, University of Berlin, 1901; Senior Fellow in Germanics, University of Pennsylvania, 1901-2; Acting Professor of German, University of Missouri, 1902-3.

ASSISTANT PROFESSORS

†**HENRY CAPLES PENN, A. B., A. M.,**

Assistant Professor of English Language and Literature.

A. B., Central College, 1885; Instructor in Latin, Greek, and English, Hendrix College (Arkansas), 1885-7; Student, Harvard University, 1892-4, A. M., 1893; Assistant Professor of English, University of Missouri, 1887—.

SIDNEY CALVERT, B. Sc., A. M.,

Assistant Professor of Chemistry.

B. Sc., McGill University, 1890; Graduate Student, Harvard University, 1890-4, A. M., 1892, Assistant in Chemistry, 1892-4, Private Research Assistant, 1892-4; Assistant in Chemistry, Harvard Summer School, 1894; Student, University of Freiburg, 1901-2; Assistant Professor of Chemistry, University of Missouri, 1894—.

HENRY MARVIN BELDEN, A. B., Ph. D.,

Assistant Professor of English Language and Literature.

A. B., Trinity College, 1888; Instructor in English, Lehigh University, 1890-1, University of Nebraska, 1893-4; Student, University of Strassburg, 1894-5; Ph. D., Johns Hopkins University, 1895; Assistant Professor of English Language and Literature, University of Missouri, 1895—.

†Absent during session of 1902-3.

EVA JOHNSTON, A. M.,

Assistant Professor of Latin.

Fellow in Latin, University of Missouri, 1894-6, A. M., 1895; Instructor in Latin and Greek, Columbia (Mo.) High School, 1896-9; Student, Universities of Berlin and Heidelberg, 1899-1901; Assistant Professor of Latin, University of Missouri, 1899—.

RALPH EMERSON BASSETT, A. B., A. M.,

Assistant Professor of Romance Languages.

A. B., Harvard University, 1889, A. M., 1890; Master in Modern Languages, Belmont School, Mass., 1890-2; Instructor in French and German, De Pauw University, 1892-3; Student in Paris, 1893-4; Acting Professor of Modern Languages, New Hampshire College of Agriculture and Mechanic Arts, 1894-5, College of Charleston, 1895-7; Instructor in Romance Languages, Syracuse University, 1897-9, Western Reserve University, 1899-1900; Assistant Professor of Romance Languages, University of Missouri, 1900—.

HERMANN BENJAMIN ALMSTEDT, B. L., Ph. D.,

Assistant Professor (in charge) of Germanic Languages.

B. L., B. P., University of Missouri, 1895; Reader in German, University of Chicago, 1895-8, Assistant, 1898-1900, Ph. D., 1900, Associate, 1900-1, Dean in University College (College for Teachers), 1900-1; Studied in Germany, 1897; Assistant Professor of Germanic Languages, University of Missouri (in charge, 1902-3), 1901—.

OSCAR MILTON STEWART, Ph. B., Ph. D.,

Assistant Professor of Physics.

Ph. B., De Pauw University, 1892; Ph. D., Cornell University, 1897; Professor of Physics and Chemistry, Baker University, 1892-4; Fellow, Cornell University, 1895-6, Assistant in Physics, 1896-8, Instructor in Physics, 1898-1901; Assistant Professor of Physics, University of Missouri, 1901—.

CLARENCE HENRY ECKLES, B. Agr., M. Sc.,

Assistant Professor (in charge) of Dairy Husbandry.

B. Agr., Iowa Agricultural College, 1895, M. Sc., 1897; Student, University of Wisconsin, 1896; Instructor in Dairying, Iowa Agricultural College, and Dairy Bacteriologist to the Iowa Experiment Station, 1896-1901; Instructor in Dairy Husbandry, Massachusetts Agricultural College, Short Course of 1898-9; Assistant Professor (in charge) of Dairy Husbandry, University of Missouri, 1901—.

LOUIS INGOLD, A. B., A. M.,

Acting Assistant Professor of Mathematics.

Student Assistant in Mathematics, University of Missouri, 1900-1, A. B., 1901, Teaching Fellow in Mathematics, 1901-2, A. M., 1902; Stu-

dent, University of Chicago, 1902; Acting Assistant Professor of Mathematics, University of Missouri, 1902-3.

H. V. S. JONES, A. B.,

Acting Assistant Professor of English Language and Literature.

A. B., College of Charleston, 1899; A. B., Harvard University, 1901; Professor of English, Mount Union College, 1901-2; Acting Assistant Professor of English, University of Missouri, 1902-3.

*HERMANN OTTO SCHULZE, B. S., C. E., E. M.,

Assistant Professor of Metallurgy.

B. S., C. E., University of Missouri (School of Mines), 1899, E. M., 1902; Assayer and Constructing Engineer, Leadville, 1899; Instructor in Metallurgy, University of Missouri (School of Mines), 1900-2, Assistant Professor of Metallurgy, 1902—.

NORMAN MACLAREN TRENHOLME, A. M., Ph. D.,

Assistant Professor (in charge) of History.

A. B., McGill University, 1895, Graduate Student, 1895-6; Graduate Scholar in History, Harvard University, 1896-8, A. M., 1897, Assistant in History, 1898-9, Ph. D., 1899, Non-Resident Graduate Student and Harris Fellow in History, studying in Europe, 1899-1900; Professor of History and English Literature, Western University (Can.), 1900-1; Instructor in History and Political Science, Pennsylvania State College, 1901-2; Assistant Professor (in charge) of History, University of Missouri, 1902—.

INSTRUCTORS

*PAUL JULIUS WILKINS, B. S.,

Instructor in Modern Languages.

B. S., Michigan Agricultural and Mechanical College, 1869; Instructor in University of Missouri (School of Mines), 1887—.

MARY ESTELLE PORTER, B. L.,

Instructor in Commercial Studies.

B. L., Delaware College, 1876; Student, Bower's School of Shorthand and Curtiss' Commercial College, Minneapolis; Instructor in Commercial Studies, University of Missouri, 1895—.

RICHARD B. MOORE, B. S.,

Instructor in Chemistry.

University College, London, 1886-90; Instructor in Chemistry, Oswestry High School (England), 1890-1; Instructor in Chemistry, Birkbeck Technical College, London, 1891-3; British Museum, 1893-5; B. S., University of Chicago, 1896, Laboratory Demonstrator, 1896; Instructor in Chemistry, University of Missouri, 1897—.

***JOHN BENNETT SCOTT,**
Instructor in English.

THOMAS JACKSON RODHOUSE, B. S.,
Instructor in Drawing.

B. S. in Civil Engineering, University of Missouri, 1897, Instructor in Drawing, 1897—.

JANE A. L. ZABRISKIE,
Instructor in Household Economics.

Student, Lake Forest University, 1893-6; Pratt Institute, 1896-8; Instructor in Household Economics, J. R. Doolittle School, Chicago, 1898-1900; Student, University of Chicago, 1898-1900; Instructor in Household Economics, University of Missouri, 1900—.

WINTERTON CONWAY CURTIS, A. B., A. M., Ph. D.,
Instructor in Zoology.

A. B., Williams College, 1897, A. M., 1898, Assistant in Biology, 1897-8; Assistant in Biology, Johns Hopkins University, 1899-1900, Fellow, 1900-1, Ph. D., 1901; Instructor in Marine Biological Laboratory, Woods Hole, Mass., 1898—; Instructor in Zoology, University of Missouri, 1901—.

ROLLA ROY RAMSEY, A. B., A. M., Ph. D.,
Instructor in Physics.

A. B., Indiana University, 1895, Laboratory Assistant in Physics, 1896-7, A. M., 1898; Professor of Physics, Westminster College (Pa.), 1897-8; Scholar, Clark University, 1898-9; Assistant in Physics, Cornell University, 1899; Instructor in Physics, Indiana University, 1899-1900; Scholar, Cornell University, 1900-1, Ph. D., 1901; Instructor in Physics, University of Missouri, 1901—.

JOHN SITES ANKENY, JR.,
Instructor in Freehand Drawing.

Student, Art Students' League, New York, 1889, 1892, Academie Julian (Atelier Lefebvre) and Ecole des Beaux Arts, Paris, 1893, 1894, Atelier Aman-Jean, 1895; in galleries of Italy and Holland, summer of 1895, and in Landscape Painting in France, summers of 1898 and 1894; Supervisor of Drawing, Carthage (Mo.) Schools, 1896-8, Kansas City Schools, 1899-1901; Student, Harvard University, 1901; Instructor in Freehand Drawing, University of Missouri, 1901—.

WALTER SCOTT WILLIAMS, C. E.,
Instructor in Civil Engineering.

C. E., University of Missouri, 1885; Subdivision Engineer on construction, Missouri Pacific Railway, 1886; Assistant Engineer on location and construction, K. C., F. S. & M. R. R., 1887-90; Chief Engineer on location and construction, Hearne & Brazos Valley R. R., 1891-2; Assistant Engineer with Mississippi River Commission, 1893-1901; Assistant Engineer in charge of precise levels, U. S. Lake Survey, 1901; Instructor in Civil Engineering, University of Missouri, 1901—.

***JAMES CLARK DRAPER, B. S.,**

Instructor in Assaying and Mineralogy.

B. S., University of Missouri (School of Mines), 1901, Instructor in Shopwork and Drawing, 1901-2, Instructor in Assaying and Mineralogy, 1902—.

***ALBERT DYKE WILSON, B. S.,**

Instructor in Chemistry.

B. S., University of Missouri (School of Mines), 1902, Assistant in Chemistry, 1898-1901, Instructor in Chemistry, 1901—.

***JOSEPH HENRY BOWEN,**

Instructor in Shopwork and Drawing.

Student, Miller School (Va.), 1890-5; Rhode Island School of Design, 1896-7; Instructor in Shopwork and Drawing, University of Missouri (School of Mines), 1902—.

ARTHUR B. COBLE, A. B., Ph. D.,

Instructor in Mathematics.

A. B., Pennsylvania College, 1897, A. M., 1900; Ph. D., Johns Hopkins University, 1902; Instructor in Mathematics, University of Missouri, 1902—.

WILLIAM HUTCHINSON COOK,

Instructor in Manual Training and Shopwork.

Teacher, Public Schools, Michigan, 1887-9, 1892-4; Student, State Normal School, Michigan, 1889-90; Mechanic, Superintendent, etc., in various factories and machine-works, 1894-1901; Student, Teachers' College, Columbia University, 1901-2; Instructor in Manual Training and Shopwork, University of Missouri, 1902—.

LOWELL A. GOODMAN, C. E.,

Instructor in Horticulture.

C. E., University of Michigan, 1867; Secretary, Missouri State Horticultural Society, 1882—; Instructor in Horticulture, University of Missouri, 1902—.

CHARLES WENTWORTH HODSDON, B. S.,

Instructor in Mechanical Engineering.

B. S., Massachusetts Institute of Technology, 1900, Assistant, 1901-2; Instructor in Mechanical Engineering, University of Missouri, 1902—.

MARY IDA MANN,

Instructor in Physical Training.

Graduate, Michigan State Normal College, 1898; Graduate, Chautauqua School of Physical Education, 1899; Assistant, Woman's Gymnasium,

Michigan State Normal School, 1898-1901; Graduate, New Haven Normal School of Gymnastics, 1902; Instructor in Physical Training, University of Missouri, 1902—.

N. F. MURRAY,

Instructor in Horticulture.

HERMAN SCHLUNDT, B. S., M. S., Ph. D.,

Instructor in Physical Chemistry.

B. S., University of Wisconsin, 1894, Assistant in Chemistry, 1894-6. M. S., 1896; Instructor in Physics and Chemistry, West Division High School, Milwaukee, Wis., 1896-9; Student, University of Leipzig, 1899-1900; Fellow in Chemistry, University of Wisconsin, 1900-1, Ph. D., 1901. Instructor in Chemistry, 1901-2; Instructor in Physical Chemistry, University of Missouri, 1902—.

CAROLINE TAYLOR STEWART, A. M., Ph. D.,

Instructor in Germanic Languages.

A. M., University of Michigan, 1895; Student, Bryn Mawr College, 1895-6, Fellow in Germanics, 1897; National Association Collegiate Alumnae Fellow, 1898; Woman's Educational Association Fellow, 1899; Ph. D., University of Berlin, 1901; Instructor in Germanic Languages. University of Missouri, 1902—.

***ROBERT CLAIR THOMPSON, B. S.,**

Instructor in Chemistry.

Graduate of Clarion (Pa.) State Normal School, 1896; B. S., Westminster College, Pa., 1901; Student, University of Missouri, 1901; Teacher of Chemistry and Biology, High School, Mexico, Mo., 1902; Instructor in Chemistry, University of Missouri (School of Mines), 1902—.

GEORGE MASON TUCKER, B. S., Ph. D.,

Instructor in Agriculture.

B. S., Rhode Island College of Agriculture and Mechanic Arts, 1894; Assistant Agriculturist, Rhode Island Agricultural Experiment Station, 1894-7; Ph. D., University of Goettingen, 1899; Manager of Plantation, Oaxaca Coffee Co., Mexico, 1900-2; Instructor in Agriculture, University of Missouri, 1902—.

FLOYD WILKINS TUTTLE, A. B.,

Instructor in Physical Training.

Student Assistant in Gymnasium, University of Missouri, 1900-2, A. B., 1902; Graduate Chautauqua School of Physical Education, 1902; Instructor in Physical Training, University of Missouri, 1902—.

JONAS VILES, A. M., Ph. D.,

Instructor in History.

A. B., Harvard University, 1896, A. M., 1897; Teacher in Dalsell's

School for Boys, Worcester, 1896-8; Ph. D., Harvard University, 1901; Studied in London, 1901-2; Instructor in History, University of Missouri, 1902—.

WILLIAM LINN WESTERMANN, A. B., Ph. D.,
Instructor in Greek Language and Literature.

A. B., University of Nebraska, 1894, A. M., 1896, Student Assistant in Latin, 1894-6; Teacher of Latin and Greek, High School, Decatur, Ill., 1896-9; Student, University of Berlin, 1899-1902, Heidelberg, 1902; Ph. D., University of Berlin, 1902; Instructor in Greek, University of Missouri, 1902—.

GRACE SARA WILLIAMS, A. B.,
Instructor in Romance Languages.

A. B., Knox College, 1897; Student, Columbia University, 1898-9; Sorbonne College de France, Ecole des Chartes, Ecole Pratique des Hautes Etudes, 1899-1900; Istituti di Studi Superiori, Florence (winter semester), 1900-1; Rome, Madrid, 1901; Holder of the European Fellowship of the Women's Educational Association of Boston, 1900-1; Eleve Titulaire de l'Ecole Pratique des Hautes Etudes (Section des Sciences Historiques et Philologiques), Paris, 1901; Instructor in Romance Languages, University of Missouri, 1902—.

ARTHUR C. DUNCAN,
Instructor in Shopwork.

Graduate of Williamson Mechanical Trade School, 1900; Machinist and Draughtsman, 1900-3; Instructor in Shopwork, University of Missouri, 1903—.

ASSISTANTS

***GEORGE WALTER HARRIS,**
Assistant in Chemical Laboratory.

***LEON ELLIS GARRETT, B. S.,**
Assistant in Mathematics.

***CORNELIUS MARK DAILY, B. S.,**
Assistant in Physical Laboratory.

***ROYAL SYLVESTER WEBSTER,**
Assistant in Surveying.

***CYRUS EDWARD MINOR,**
Assistant in Chemical Laboratory.

WALTER LAFAYETTE HOWARD, B. Agr., B. S.,
Assistant in Horticulture, and Assistant Horticulturalist to the Experiment Station.

B. Agr., B. S., University of Missouri, 1901, Assistant in Horticulture

and Assistant Horticulturalist to the Experiment Station (in charge of Station Work 1901-2), 1901—.

PETER POTTER, B. S.,
Assistant in Anatomy.

B. S., University of Missouri, 1901, Student Assistant in Anatomy, 1900-1, Assistant in Anatomy, 1901-3.

ELEXIOUS THOMPSON BELL, B. S.,
Assistant in Anatomy.

B. S., University of Missouri, 1901, Fellow in Anatomy, 1901-2, Assistant in Anatomy, 1902-3.

ERNEST HOWARD FAVOR, A. B.,
Assistant in Botany.

A. B., University of Missouri, 1902, Assistant in Botany, 1902-3.

HENRY C. FREUDENBERGER, B. L.,
Assistant in Physiology.

B. L., University of Missouri, 1900, Fellow in Bacteriology and Pathology, 1901-2, Assistant in Physiology, 1902-3.

THORNTON EASLEY MOORE,
Assistant in Physiology.

E. L. SHAW, B. S.,
Assistant in Agriculture.

MILTON ROBARDS CONLEY, A. M., LL. M.,
Assistant in Law.

A. B., B. L., University of Missouri, 1892, A. M., 1893, LL. B., 1898, LL. M., 1899, Assistant in Law, 1903.

*RALPH AUGUSTUS CONRAD,
Assistant in Crystallography.

*GLEN BECKLEY MORGAN,
Assistant in Surveying.

HARVEY DENNIE MURRY, LL. B., LL. M.,
Assistant in Law.

LL. B., University of Missouri, 1897, LL. M., 1898, Assistant in Law, 1908.

*IRA LEE WRIGHT,
Assistant in Surveying.

STUDENT ASSISTANTS

FRED GEORGE BAENDER,

Student Assistant in Shopwork.

EARL BRADSHER,

Student Assistant in English.

MILO HAMILTON BRINKLEY,

Student Assistant in Mechanical Drawing.

ROBERT BRECKENRIDGE CALDWELL,

Student Assistant in English.

ROBERT CALVIN COCHEL,

Student Assistant in Civil Engineering.

THOMAS JEFFERSON CRAIG,

Student Assistant in Mechanical Drawing.

JAMES ANDERSON CROCKETT,

Student Assistant in Bacteriology and Pathology.

NORMAN FREUDENBERGER, A. B., A. M.,

Student Assistant in Greek.

GOLDY MITCHELL HAMILTON,

Student Assistant in English.

FRANK WRIGHT LIEPSNER,

Student Assistant in Chemistry.

ROBERT HODGE LOCKE,

Student Assistant in Chemistry.

FRANK CECIL MAGRUDER,

Student Assistant in Civil Engineering.

CAROLINE MCGILL,

Student Assistant in Zoology.

ERNEST FRANKLIN ROBINSON,

Student Assistant in Civil Engineering.

CAROLYN STONER,

Student Assistant in Women's Gymnasium.

ARTHUR T. SWEET,
Student Assistant in Geology.

ISABELLA AUSTIN WINSLOW.
Student Assistant in English.

OTHER OFFICERS

JAMES THAYER GEROULD, A. B.,
Librarian.

WALTER K. STONE, A. B.,
Assistant Librarian.

DUNCAN BURNET,
Head Cataloguer.

*MRS. J. D. CARPENTER,
Librarian.

C. A. GOOD, M. D.,
House Surgeon, Parker Memorial Hospital.

SOPHIE EVANS,
Superintendent of Nurses.

J. G. BABB, A. M., LL. B.,
Proctor, and Secretary of the Board of Curators.

B. B. PRICE, M. S.,
Treasurer.

IRVIN SWITZLER,
Registrar, and Secretary of the Various Faculties.

WILLIAM MCGUFFEY HOGE, A. B., A. M.,
Examiner of Schools.

*CHARLES L. WOODS,
Secretary of Executive Committee, School of Mines.

*HENRY WOOD,
Treasurer of the School of Mines.

NOAH M. GIVAN,

Attorney for the collection of the Collateral Inheritance Tax.

MRS. LOUISE NORWOOD FITCH,

Matron.

MRS. IDA CUNNINGHAM,

Assistant Matron.

APPOINTMENTS TO TAKE EFFECT SEPTEMBER 1, 1903.

HOWARD S. REED, A. B.,

Instructor in Botany.

L. D. AMES, A. B., A. M.,

Instructor in Mathematics.

GEORGE J. REEVES, B. S.,

Assistant in Entomology.

PROMOTIONS TO TAKE EFFECT SEPTEMBER 1, 1903.

WALTER SCOTT WILLIAMS, C. E.,

Assistant Professor of Civil Engineering.

WALTER L. HOWARD, B. Agr., B. S.,

Instructor in Horticulture.

LECTURERS BEFORE THE UNIVERSITY

W. H. McClain, General Manager of the St. Louis Provident Association. Subject: The Relief of Needy Families in their Homes. November 13, 1902.

Nicholas Murray Butler, Ph. D., LL. D., President of Columbia University. Subject: Some Tendencies of Modern Education. November 21, 1902.

E. B. Cralghead, A. M., President of the Missouri State Normal School, Warrensburg. Subject: The Strenuous Life as a Force in Civilization. January 9, 1903.

Jacob Gould Schurman, Ph. D., LL. D., President of Cornell University. Subject: The Present and the Future of the Philippines. January 12, 1903.

Isidor Loeb, LL. B., Ph. D., Professor of Political Science and Public Law, University of Missouri. Subject: The Government of Colonies. February 3, 1903.

A. R. Frothingham, Jr., Ph. D., Professor of Classical Archaeology, Princeton University. Subject: Roman Triumphal Arches. February 4, 1903.

A. Ross Hill, Ph. D., Professor of Philosophy, University of Nebraska. Subject: The Psychology of Play. February 20, 1903.

Josiah H. Penniman, Ph. D., Dean of the College, University of Pennsylvania. Subject: The Literary Study of the Bible. March 5, 1903.

David E. Cloyd, Inspector of Schools (General Educational Board). New York City. Subject: The New Educational Development in the South. March 18, 1903.

Paul Shorey, Ph. D., Professor of Greek, University of Chicago. Subject: Realism and Idealism in Greek Literature and Art. March 27, 1903.

David Starr Jordan, Ph. D., President of Leland Stanford Jr. University. Subject: College Spirit. April 1, 1903.

Rev. Nathaniel Schmidt, A. M., Professor of Semitic Languages and Literatures, Cornell University. Subject: The Legacy of the Quaker. April 8, 1903.

John Robert Sitlington Sterrett, Ph. D., Professor of Greek, Cornell University. Subject: The Cave-Dwellers of Asia Minor. April 9, 1903.

Albert Lefevre, Ph. D., Assistant Professor of Philosophy, Cornell University. Subject: Philosophy and Science. April 10, 1903.

James Edwin Creighton, Ph. D., Sage Professor of Logic and Metaphysics, Cornell University. Subject: Eighteenth and Nineteenth Century Ways of Thinking. April 14, 1903.

Rev. George J. Warren, Chaplain of the Missouri State Penitentiary. Subject: The History, Present Condition, and Needs, of the Missouri State Penitentiary. April 22, 1903.

Arthur W. Greeley, Ph. D., Professor of Biology, Washington University. Subject: The Role of Temperature in Vital Phenomena. May 8, 1903.

Otto Heller, Ph. D., Professor of German, Washington University. Subject: Gerhart Hauptmann. May 16, 1903.

GENERAL INFORMATION

Historical Statement:

The legislative act establishing the public school system was approved February 9, 1839, and that establishing the University was approved February 11, 1839.

The University was located at Columbia, Boone county, June 24, 1839. The cornerstone of the main building was laid July 4, 1840, and this is generally accepted as the date of the foundation of the University. Courses of instruction in Academic work were begun on April 14, 1841. A Normal Department was established in 1867, and was opened in September, 1868. In 1869 women were admitted first to the Normal Department, in 1870 to the Academic Department, and soon after to all Departments. The College of Agriculture and Mechanic Arts and the School of Mines and Metallurgy were made Departments of the University in 1870—the School of Mines and Metallurgy being located at Rolla, where it was formally opened November 23, 1871. The Law Department was opened in 1872; the Medical Department in 1873; and the Engineering Department in 1877. The Experiment Station was established, under act of Congress, in 1888. The Missouri State Military School was created a Department of the University in 1890. In June, 1896, the Graduate Department was established by the Board of Curators. In 1868 the State gave aid for the first time to the University—a sum of \$10,000. On January 9, 1892, the Main Building of the University at Columbia was destroyed by fire. In the following March, the Legislature gave for building and equipment \$236,577. In March, 1893, this fund was increased by a second appropriation of \$264,000, and by \$25,000 additional for a new building at Rolla. The Thirty-ninth General Assembly appropriated \$33,000 to build an additional club house at Columbia and the Fortieth erected a hospital. The Forty-first General Assembly gave for buildings at Columbia \$195,000 and for the same purpose at Rolla \$87,000. The Forty-second General Assembly, in addition to appropriations for maintenance, has appropriated \$184,200 for buildings and \$152,000 for equipment and improvements at Columbia, and for equipment and improvements at Rolla, \$108,000.

For more detailed statements concerning the various Departments, see their special announcements in this Catalogue.

A. THE DEPARTMENTS AT COLUMBIA.

REQUIREMENTS FOR ADMISSION.

The following are the requirements for admission to the various Departments:

Graduate Department:

Graduates of either sex of the colleges and universities comprising the Missouri College Union and of other reputable colleges and universities, and (in exceptional cases, by special permission of the Faculty) other persons of liberal education, are admitted to such graduate work as they are prepared for. See announcement of this Department.

Academic Department, Departments of Education, Law, and Medicine, and Schools of Engineering and Agriculture:

Twelve units are required for admission to each of these Departments. The subjects in which these units may be offered, the minimum and the maximum number of units that may be offered in each subject, and the number of units required in certain subjects for each Department are presented in the table given below.

SUBJECTS.	Required in the Several Departments.							
	Minimum...	Maximum..	For all Departments.	Academic and Education	Law	Medicine.....	Engineering ...	Agriculture.....
English.....	2	4		3	3	3	3	2
Algebra.....	1	2		1		1	1	1
Plane Geometry.....	1	1		1			1	
Solid Geometry.....	1/2	1/2						
Plane Trigonometry.	1/2	1/2						
History.....	1	4						
Latin	1	4	Two units of foreign language.					
Greek	1	3						
German.....	1	3						
French	1	3						
Spanish	1	3						
Physics	1	2						
Chemistry.....	1	2						
General Biology.....	1	2						
Zoology	1	2						
Botany	1	2						
Drawing.....	1	1						
*Shopwork.....	1	1						

*In the Academic Department and Department of Law Shopwork may not be offered.

DEFINITION OF UNITS IN THE SEVERAL SUBJECTS.

English. The four units that may be offered in English are as follows :

1. *Language.* The principles of the language, as given in any good modern high school grammar.

2. *Rhetoric and Composition.* The student will be required to show, by compositions on subjects given in the examination, a practical knowledge of the principles of sentence and paragraph structure and the ability to express himself coherently and idiomatically. The examination will not be one in formal rhetoric, but the study of a good elementary text-book is recommended.

3. *Literature.* The examination will be upon the masterpieces recommended for college entrance in the North Central States, or an equivalent offered by the candidate. The masterpieces recommended are :

For general reading: Shakespeare's *The Merchant of Venice*; Pope's *Iliad* (Books I, VI, XXII and XXIV); The *Sir Roger De Coverley Papers*; Goldsmith's *The Vicar of Wakefield*; Coleridge's *The Ancient Mariner*; Scott's *Ivanhoe*; Cooper's *The Last of the Mohicans*; Tennyson's *The Princess*; Lowell's *The Vision of Sir Launfal*; George Elliot's *Silas Marner*.

For minute and critical study: Shakespeare's *Macbeth*; Milton's *Lycidas*, *Comus*, *L'Allegro*, and *Il Penseroso*; Burke's *Speech on Conciliation with America*; Macaulay's *Essays on Milton and Addison*.

4. For the fourth unit the candidate may offer either :

Literature. A year's work in English or American literature in addition to that described under 3; or

History of the Language. A year's work in the history of the language (Lounsbury's or an equivalent text); or

Literature and History of the Language. Half a year's work in each.

Mathematics. The four units that may be offered in Mathematics are as follows :

Algebra. *One unit:* Algebra to quadratics in a good text-book such as Smith's *Elementary Algebra*. *Two units:* The completion of the work in a good text-book such as that just named. It is recommended that the teacher supplement the work in ordinary texts for the second unit in Algebra.

Plane Geometry. *One unit:* The completion of Plane Geometry.

Solid Geometry. *One-half unit:* The completion of Solid Geometry.

Trigonometry. *One-half unit:* The completion of Plane Trigonometry in a good text.

History. The four units that may be offered in History are as follows :

General History. *One unit:* The equivalent of the work given in Myers' General History. *Two units:* The equivalent of the work given in Myers' Ancient History and Myers' Medieval and Modern History.

English History. *One-half unit* (see note below): The equivalent of the work given in Ransome's Short History of England. *One unit:* The equivalent of the work in Green's Short History of the English People.

American History. *One-half unit* (see note below): The equivalent of the work given in Johnston's The United States—Its History and Constitution. *One unit:* The equivalent of the work given in Channing's A Student's History of the United States. The examination in this subject will include questions on Civil Government.

Note. A half-unit in English or American History will be accepted only when accompanied by at least one unit in General History.

Latin. The four units that may be offered in Latin are as follows:

1. Collar and Daniell's First Latin Book or the equivalent.
2. Three books of Caesar's Gallic War with composition based thereon in Moulton and Collar's Preparatory Latin Composition or in Daniell's New Latin Composition. For one book of the Gallic War the equivalent in time of Viri Romae, Nepos, or Eutropius may be offered.
3. Two additional books of the Gallic War and four Orations of Cicero with composition based thereon in the books mentioned above.
4. Ovid's Metamorphoses (2,000 lines) and four books of Vergil's Aeneid, with prosody.

Greek. The three units that may be offered in Greek are as follows:

1. White's First Greek Book, or Gleason and Atherton's First Greek Book.
2. Three books of Xenophon's Anabasis, Pearson's Greek Prose Composition, or its equivalent, Goodwin's Greek Grammar.
3. Ten orations of Lysias and the first four books of Homer's Odyssey, or an equivalent amount of other Greek authors. Bridgman's Parallel Exercises based on Lysias.

German. The three units that may be offered in German are as follows:

1. (a) Familiarity with inflection, the more common prepositions, the simpler uses of the modal auxiliary, and elementary word-order and syntax. (These specifications are in no sense restrictive, but are simply suggestive of the thoroughness required.) (b) Ability to translate a passage of simple prose at sight, with the help of a vocabulary of the less usual words. (c) Ability to pronounce German, and to recognize German words and simple phrases when spoken; intelligent and fluent reading of the text.

2. (In addition to 1.) (a) The translation of ordinary German at sight. This presupposes, in addition to the elementary requirement, the reading of works like the following: *Burg Netdeck* (Riehl), *Die Journalisten* (Freytag), *Wilhelm Tell* (Schiller), from 200-250 pages. (b) A thorough knowledge of accidence of the principal values of prepositions and conjunctions, and of the essentials of German syntax—particularly that of the modal auxiliaries and subjunctive and infinitive moods. (c) The writing in German of a paragraph upon some subject selected from the works specified above. (d) Ability to follow a recitation conducted in German, and to answer in that language questions asked by the instructor.

3. (In addition to 1 and 2.) (a) The translation of continuous English prose into idiomatic German. (b) A brief essay in German upon one of two subjects selected from works like the following: Freytag, *Doktor Luther*; Keller, *Dietegen*; Schoenfeld's *Historical German Prose*; Gutzkow's *Zopf u. Schwert*; Lessing's *Emilia Galotti*.

French. The three units that may be offered in French are as follows:

1. A knowledge of the main principles of grammar, and a good pronunciation; the ability to translate at sight ordinary nineteenth century prose, represented by not less than four hundred pages selected from at least three authors.

2. A year's work in addition to that outlined under 1. The candidate will be required to show proficiency in syntax, the ability to translate at sight standard prose into simple and idiomatic English, and some facility in writing in French short accounts connected with the works read, or in translating from English a passage of connected prose. Special attention should be paid throughout to pronunciation. Texts should be confined chiefly to standard works of the eighteenth and nineteenth centuries.

3. By a third unit in French is meant the results of a progressive study of the language during a third year under the same general conditions as for a second unit. These should comprise the reading of about a thousand pages of standard French, classical and modern; and the writing of numerous short themes in French, in which the rules of syntax may be correctly observed. The works should be read, not translated, with the exception of the more difficult passages.

Spanish. The three units that may be offered in Spanish are as follows:

1. A year's work, with the same requirements in grammar, pronunciation, and reading as for the first unit in French, described above.

2. A second year's work in Spanish, parallel to the second year in

French described above. It is recommended that the choice of texts for the second year be confined chiefly to standard works of fiction from the nineteenth century (Caballero, Alarcon, Valera, Galdos, Valdes).

3. A third unit in Spanish comprises the study of Cervantes, Don Quijote and Novelas Ejemplares; Quevedo, Suenos; Guzman de Alfarache (Part 1); Lazarillo de Tormes. The last two if difficult to be found may be replaced by three plays of Lope de Vega and two of Calderon.

Chemistry. The two units that may be offered in Chemistry are as follows:

1. A year's work in Chemistry, five periods a week, of which at least three must be devoted to laboratory work.

2. A second year's work in the subject, with periods as above.

Note-books showing work done should be presented.

Physics. The examination in Physics will be on both the text and the laboratory work. The candidate must present material evidence of having done the amount and kind of laboratory work required, such as his note-book containing a record of the experiments performed by himself.

The two units that may be offered are as follows:

1. A year's work of the grade done in an approved high school. At least one-half must be laboratory work.

2. A continuation of the laboratory for another year, or a year's work in a more advanced text together with laboratory work.

General Biology. *Note-books and drawings showing work done must be presented.*

The two units that may be offered in General Biology are as follows:

1. One year's work, including not less than five periods a week, three of which at least have been devoted to laboratory work. The following series of animal and plant forms is recommended: (1) Amoeba, (2) Paramoecium or Vorticella, (3) Haematococcus, (4) Yeast Plant, (5) Spirogyra, (6) Hydra, (7) Mucor or Penicillium, (8) Earthworm, (9) Crayfish, (10) Grasshopper, (11) Fern, (12) Fresh-water Mussel, (13) Seeds and Seedlings, (14) Flowering Plant, (15) Frog, with metamorphosis.

2. More advanced work in the subject, with a study of additional forms, during the same length of time as required for 1.

Zoology. The study of each form must include a consideration of (1) habitat, (2) geographical distribution, (3) food, (4) adaptations to environment, including relation to other forms of animal and plant life, (5) habits and functions, (6) life-history, and (7) structure. *Note-books and drawings showing work done must be presented.*

The two units that may be offered in Zoology are as follows:

1. One year's work with periods as described above for General Biology. The following series of animals is recommended: (1) Protozoa (Amoeba, and Paramoecium or Vorticella), (2) A Coelenterate (Hydra), (3) An Echinoderm (Sea-urchin or Starfish), (4) An Annelid (Earthworm), (5) a Parasitic Worm (Cestode), (6) A Decapod Crustacean (Crayfish), (7) An Orthopterous Insect (Grasshopper, and comparison with other Orthoptera), (8) A Coleopterous Insect, (9) A Lepidopterous Insect, with larva and pupa, (10) A Hymenopterous Insect, (11) A Pelecypod Mollusc (Fresh-water Mussel), (12) An Amphibian (Frog, with metamorphosis).

2. More advanced work in the subject, with study of additional forms, during same length of time as required for 1.

Botany. The two units that may be offered in Botany are as follows:

1. *Morphology and Physiology.* An equivalent of Bergen's Foundations of Botany and Coulter's Plant Relations.

2. *Histology and Taxonomy.* An equivalent of Gray's Botanical Textbook, Vol. I (in part) and Gray's Manual or Britton's Handbook.

Credit will be given for no work, unless note-books are presented.

Drawing. The one unit that may be offered in Drawing is as follows:

A year's thorough work in Freehand Drawing, or in Mechanical Drawing, or in a combination of the two. This unit is the equivalent of five laboratory periods a week throughout the year. Drawings must be presented by students desiring credit in this subject for entrance.

Freehand. The ability to draw and paint natural growths (leaves, flowers); to give correct proportions, perspective, and light and shade in drawing from geometric solids, vases, etc.; to paint with water colors from simple objects (fruits, vases); to make designs suitable for book covers and school programmes, in black and white and in color.

Mechanical. Use of instruments and plain lettering; simple geometrical problems, plain freehand lettering and dimensioning; plans, elevations, and cross-sections; development of the *idea of plan, elevation, and section* from geometrical solids; drawing accurately to scale plans, elevations, and sections from pupil's own measurements and dimensioned freehand sketches of simple machine parts; plan and elevation of some building measured by pupils. The explanation and practice of isometric and cabinet views as applied especially in joinery.

Combination. The ability to draw, as outlined under the Freehand Course, without the painting; the use of the instruments, plain lettering,

the drawing of simple plans and elevations as outlined under the Mechanical Course.

Shopwork. One unit in Shopwork may be offered for admission to any Department except the Academic and Law Departments. The candidate must give satisfactory evidence of having completed a year's work (five periods a week of at least an hour and a half each) in Shopwork.

Time of Examinations:

Examinations for admission will be held at the University September 3, 4, 5, 7, 1908. All persons desiring to enter the University at the opening of the session in the fall of 1908, except those holding certificates of graduation from Approved Schools and those who have already otherwise fulfilled the entrance requirements, must present themselves at the Registrar's office, room 18, Academic Hall, at 8:30 a. m., Thursday, September 3. They will then receive complete directions concerning the examinations.

The programme of examinations is as follows:

Thursday, September 3.—9 a. m., English; 2 p. m., Mathematics.

Friday, September 4.—9 a. m., Latin, German, Spanish; 2 p. m., Physics.

Saturday, September 5.—9 a. m., Biology, Zoology, Botany, French, Greek; 2 p. m., General History, Drawing.

Monday, September 7.—9 a. m., English History, American History; 2 p. m., Chemistry, Shopwork.

Acceptance of Grades:

Students who do not hold certificates of graduation from Approved School (pages 39-41) may present their grades in any subject, but the acceptance of these grades in place of an examination rests wholly in the judgment of the Professor of the subject. In the case of students from other states than Missouri, such grades should be presented to the Committee on Entrance by Certificate which is authorized to accept them. For admission from Approved Schools in other states, see page 41.

Students who wish to present grades in lieu of examination in any subject should have them certified to by the proper official of the school in which the grades were made.

Advanced Standing:

Claims for advanced standing, in order to receive recognition, must be made by the student within one semester after entrance. Such claims must be presented to the Dean of the Department, except in the School of Engineering, where they must be presented to Professor H. B. Shaw, Chairman of Committee on Advanced Standing for the School of Engineering.

Students who wish to have their claims for advanced standing passed upon before matriculation may present them at any time to the proper authority.

Of his fitness to pursue advanced work the student must satisfy, by examination or otherwise, the Professors of the subjects which he elects.

Special Students:

Special students will be admitted to the University without passing the regular examination required for entrance, under the following conditions: (1) They must be at least 21 years of age; (2) they must show good reason for not taking a regular course; (3) they must pass such examinations or other tests as shall demonstrate fitness to pursue profitably all the subjects selected by them; (4) they will not be allowed to take work in more than two subjects, with such kindred work as the Head Professors may suggest. Special students are expected to do specially good work in the subjects which they choose and are required to take all regular examinations. If at any period of the session their work becomes unsatisfactory in one or both of the two major subjects, their connection with the University shall be severed by the Dean of the Department.

Hearers:

Under exceptional circumstances persons over 21 years of age may, with the consent of the President, the Dean and the instructors concerned, be admitted to courses as Hearers. Hearers must be enrolled and pay fees, but are not required to take examinations, and receive no credit toward a degree.

ADMISSION FROM APPROVED SCHOOLS.

The University will admit without examination such graduates of an Approved School as bring proper credentials of the fact that they have completed the subjects required for entrance to the Department which they desire to enter. For these requirements see table on page 82. It will admit free of entrance, library and incidental fees for the first year the student graduating from the school with the highest honors.

The diploma will not be accepted as a credential. The student must present the proper form of certificate signed by the Principal or Superintendent of the Approved School. Blank certificates will be furnished by the Registrar of the University upon application. The University recommends that Approved Schools do not issue such certificates to any students except to those who have graduated. These Certificates should be filled out and sent to the Committee on Entrance by Certificate, at any

time *not later* than the first day of entrance examinations in September. It is desirable that the Certificates be sent in advance in order that possible errors may be detected and the student notified accordingly.

For the requirements for the Approval of Schools see the "Circular of Information" issued by the University.

APPROVED SCHOOLS.

Albany High School.
 Alton (Ill.) High School.
 Aurora High School.
 Bethany High School.
 Brees Military Academy, Macon.
 Bloomfield High School.
 Bonne Terre High School.
 Boonville High School.
 Brookfield High School.
 Buchanan College, Troy.
 Butler High School.
 Cairo (Ill.) High School.
 California High School.
 Cameron High School.
 Carrollton High School.
 Carthage High School.
 Carthage Collegiate Institute.
 Caruthersville High School.
 Chillicothe High School.
 Christian College, Columbia.
 Clinton High School.
 Columbia High School.
 Columbia Normal Academy.
 Covington (Ind.) High School.
 Culver (Ind.) Military Academy.
 Davenport (Iowa) High School.
 DeSoto High School.
 East St. Louis (Ill.) High School.
 Everton High School.
 Fort Scott (Kan.) High School.
 Fort Smith (Ark.) High School.
 Gallatin High School.
 Greenfield High School.
 Greenville (Miss.) High School.
 Hamilton High School.
 Hannibal High School.
 Hardin College, Mexico.
 Harrisonville High School.
 Hosmer Hall, St. Louis.
 Hot Springs (Ark.) High School.
 Iberia Academy.
 Independence High School.
 Jefferson City High School.

Joplin High School.
 Kahoka High School.
 Kansas City High School.
 Kansas City Manual Training School.
 Kansas City (Kan.) High School.
 Kemper Military School, Boonville.
 Keokuk (Iowa) High School.
 Kewanee (Ill.) High School.
 Kidder Institute, Kidder.
 King City High School.
 Kirksville High School.
 Kirkwood High School.
 Lamar High School.
 Lancaster High School.
 Leavenworth (Kan.) High School.
 Lexington High School.
 Louisiana High School.
 Marionville Collegiate Institute.
 Marshall High School.
 Mary Institute, St. Louis.
 Maryville High School.
 Memphis High School.
 Mexico High School.
 Miami High School.
 Michigan Military Academy,
 Orchard Lake, Mich.
 Milan High School.
 Moberly High School.
 Monroe City High School.
 Montgomery City High School.
 Neosho High School.
 Nevada High School.
 Norborne High School.
 Odessa High School.
 Oklahoma City (Okla.) High School
 Oregon High School.
 Paola (Kan.) High School.
 Paris High School.
 Pierce City High School.
 Pine Bluff (Ark.) High School.
 Poplar Bluff High School.
 Princeton High School.

Quincy (Ill.) High School.	Trenton High School.
Rich Hill High School.	Unionville High School.
Richmond High School.	University Academy, Columbia.
Rogers Academy, Rogers, Ark.	University Military School, Mobile, Ala.
St. Joseph High School.	Vandalla High School.
St. Louis High School.	Walther College, St. Louis.
St. Louis Manual Training School.	Warrensburg High School.
Sedalia High School.	Washington High School.
Shelbina High School.	Webb City High School.
Shelbyville High School.	Webster Groves High School.
Slater High School.	Wentworth Military Academy, Lexington.
Smith Academy, St. Louis.	Westport High School.
Springfield High School.	Windsor High School.
Sweet Springs High School.	
Tipton High School.	

Approved Schools in Other States:

The University will admit without examination, such graduates of schools fully approved by other State Universities, as comply with the requirements for admission from Approved Schools, indicated on page 39.

Normal Schools:

Graduates of the three State Normal Schools in the advanced Latin course will be admitted to any Department of the University, without examination and without condition. They will receive, moreover, thirty-two (32) hours' credit for advanced standing in the Academic Department. Those who have graduated in the combined Latin and English course will receive thirty-six (36) hours' credit for advanced standing.

Examiner of Schools:

The position of Examiner of Schools has been established by the Board of Curators to facilitate the work of bringing the secondary schools into close connection with the University.

BUILDINGS AND EQUIPMENT.

Location:

The University of Missouri is located near the center of the State in Columbia, a town of about 6,000 inhabitants, situated half way between St. Louis and Kansas City.

It is conveniently reached from the east, north and west by the Wabash Railroad and connecting lines. The Missouri, Kansas and Texas Railroad affords a direct route to Columbia to persons living on that line, and to those living on the Missouri Pacific, St. Louis and San Francisco, and Kansas City, Fort Scott and Memphis Railroads.

The surrounding country is elevated, well drained and diversified. It is a limestone region, remarkable for its healthfulness. The University

campus includes 32 acres of undulating ground in the southern part of the town. The Experiment Farm lies one square south of the Campus, and comprises 648 acres. The Horticultural Grounds (a part of the Farm) are one square east of the Campus and include about 80 acres.

Buildings:

The University has the following buildings:

On the Campus—Academic Hall, separate buildings for Agriculture, Chemistry, Engineering, Geology and Zoology, Law, Mechanic Arts, and Medicine, the Parker Memorial Hospital, the Laws Observatory, the power house, the President's house, and Benton Hall and Lathrop Hall, two Dormitories for men; on the Farm—the Agricultural Farm buildings and the new Live Stock Judging and Dairy buildings; on the Horticultural Grounds—the new Horticultural building, green-houses, and Read Hall, the new Dormitory for women.

New Buildings:

The Forty-second General Assembly has appropriated \$75,000 for the construction and equipment of a Physical Laboratory; \$69,200 for the construction and equipment of a Gymnasium for men; \$25,000 for an addition to the Chemical Laboratory, and \$15,000 for a Veterinary Hospital.

Laboratories and Museums:

Laboratories. Facilities for practical instruction in the sciences are provided in the following laboratories: Anatomy, Astronomy, Bacteriology, Botany, Chemistry (including Agricultural Chemistry and Experiment Station work), Engineering (Civil, Electrical, and Mechanical), Entomology, Experimental Psychology, Geology and Mineralogy, Horticulture, Pathology, Phonetics, Physics, Physiology, Zoology.

For the further equipment of laboratories the Forty-second General Assembly has appropriated \$25,000 in addition to several special appropriations for laboratories.

Museums. There are also museums of Agriculture, Classical Archaeology, Ethnology, Geology, and Zoology.

Shops. There are shops for bench work in wood and for sloyd, a wood-lathe room, a forge room, and a machine shop.

Drawing Rooms. Rooms are provided for free-hand drawing, mechanical drawing, and for special drawing in Civil, Electrical and Mechanical Engineering.

Dormitories:

The University has two Dormitories for men and one for women. For detailed information concerning these Dormitories and the boarding clubs connected with them, see pages 47-49.

ORGANIZATION AND GOVERNMENT.

Organization:

The University Council consists of the President, Deans, Professors and Assistant Professors in all the Departments of the University. It is the highest organized body of the Faculty. Each Department of the University has its special Faculty, consisting of the Professors and some other teachers who give instruction in it.

The President is the executive head of the University, and is a member of all the Faculties.

Lectures and Recitations:

Lectures and recitations in all Departments, except that of Law, are held on six days in the week.

Religious Exercises:

Religious exercises are held every morning, attendance being voluntary. They consist of a hymn by the choir, readings from the Old and New Testaments, a brief prayer, and a closing hymn by the congregation. These exercises are made as attractive and beneficial as possible. During every session distinguished members of various churches have been invited to preach to the students and Faculty.

In Columbia there are churches of nearly all the prominent denominations. The University advises its students to attend regularly the services at the churches of their parents. The students maintain an efficient chapter of the Young Men's Christian Association, and one also of the Young Women's Christian Association. (See p. 55.) The University exercises much moral and religious influence, but is non-sectarian.

Provisions for Young Women:

All Departments of the University are open to women except the Department of Military Science and Tactics. In the lecture-rooms they receive the same instruction and meet the same intellectual requirements as the men. There are special rooms—five in number—furnished with admirable equipment for health and comfort, and presided over by a matron, who has charge of all the young women in attendance. One of these rooms is fitted up as a gymnasium, containing all the appliances necessary for physical training. During lecture hours the young women, when not attending lectures, are expected to be in their waiting-rooms, or in the University library, or at their respective homes. The new Dormitory has accommodations for a limited number of young women. Board may also be secured at reasonable rates in private families.

Discipline:

In the government of the University, the President and the Faculty rely chiefly upon the sense of duty of the students. The student is expected to pursue his studies with diligence, to attend classes regularly, to live morally, and maintain good behavior. The removal of those who fail to meet these requirements is demanded in the interest of the University and the better class of students. Students are under the direct supervision of the University only when on the Campus, but they are responsible for their conduct wherever they may be.

Directions for New Students:

1. New students should first satisfy the requirements for entrance. *This should be done before paying entrance fees.* Graduates of Approved Schools should have their certificates approved, as indicated on page 39. Students who do not hold certificates from Approved Schools should present themselves for examination. For time of examinations, see page 38.
2. After his certificate has been accepted, or his entrance examinations have been passed, the student must pay his entrance fee to the Treasurer.
3. The Treasurer's receipt should be at once presented to the Proctor, who will enroll the student's name and give him his class-card, with necessary instructions for proceeding further.
4. If assistance is needed in obtaining board, application should be made to the Proctor.

STUDIES.**Regulations in Regard to Studies:**

No student in any Department of the University may have more than 18 hours a week in the lecture room.

Academic students are expected to spend not less than 12 nor more than 16 hours a week at lectures or recitations. But students who are candidates for the Life Certificate may take 8 hours of Industrial work in addition to 15 hours of Academic work for each year.

One hour in the lecture-room is considered the equivalent of two and one-half hours in the laboratory, the drawing-room, the shop, and the commercial-room.

Class-cards taken out at entrance must be properly filled out and deposited with the Registrar within three days after they have been issued.

Students who enter the University in the first semester and wish to make any change in their class-cards for the second semester, are required to make such changes on or before the first day of the second

semester. Students that fail to comply with this requirement must pay a fee equal to one-half of the regular fees for the session, unless the delay has been clearly unavoidable.

Studies in Other Departments:

Students registered in one Department may, with the consent of their Dean, take work in other Departments if, in the judgment of the Professors concerned, they are prepared for such work. Students taking work in another Department than that in which they are registered are subject as respects this work to the rules of the Department in which the work belongs.

1. Academic students may take Hygiene in the Medical Department, and any courses in the College of Agriculture and Mechanic Arts and in the Department of Education. None of these courses, however, shall count toward the Academic degree unless it is allowed in the regulations respecting requirements for such degree. See pages 67-68.

2. Law students may take any instruction offered in other Departments of the University, but it shall not count toward any degree in Law.

3. Medical students in the first year may take any work offered in the Academic Department, and in the College of Agriculture and Mechanic Arts; and in their second and third years, any work offered in the University; but such work shall not count toward the degree of M. D., unless it is included in the regular Medical Course.

4. Students in the School of Agriculture may take as electives any studies approved by the Dean.

5. Engineering students may take in their Freshman and Sophomore years any instruction offered in the Academic Department, the Department of Education, and the School of Agriculture, and in their Junior and Senior years they may take anything offered in the University; but such instruction shall not count toward a degree in Engineering, unless it is included in the regular Engineering Courses.

6. No work shall count toward the Life Certificate to teach, except so far as it may conform to the requirements specified in the announcement of the Department of Education.

7. Instruction in Military Science and Tactics is open to men in all Departments.

8. Students may take work in the Summer Session (see Appendix) and receive a maximum credit therefor of six hours for a term of six weeks or twelve hours for the session of twelve weeks. No additional credit for summer work is allowed.

Graduate Studies:

See announcement of Graduate Department.

Examinations:

Examinations at the end of each semester close the studies pursued to that point.

Class Honors:

The honor of valedictorian is awarded in the various Departments to the student who has the highest grade.

Reports:

From all Departments, except those of Law and Medicine, reports of students are sent, at the close of each semester, to the parents or guardians, showing their standing in the subjects that they are pursuing. The reports of students in Law and Medicine are sent out at the close of the session.

EXPENSES.**Fees and Deposits:**

Students in the Academic Department, in the Department of Education, and in the Schools of Agriculture and Engineering pay an entrance, library, and incidental fee of \$5.

Students in the Departments of Law and Medicine (regular or special) pay \$10 a year. Students entering late or leaving early will not be entitled to any reduction in the amount of the fee.

State Cadets in the Academic Department or in the College of Agriculture and Mechanic Arts, including the School of Engineering, pay no entrance, library and incidental fee, but make all the laboratory and other deposits required of other students. If they take any study whatsoever in Law or in Medicine, they must pay the full fee of the Department.

Graduate students in any Department of the University pay an entrance, library, and incidental fee of \$5 a year, and make all the usual deposits. If they take undergraduate work in any of the classes in Law or Medicine, they must pay the full fee in that Department. Graduates of colleges and other universities will not be classed as graduate students if they take undergraduate work only.

The student who has attained the highest rank in the graduating class of any Approved School will be permitted to enter the Academic Department of the University, or the College of Agriculture and Mechanic Arts (including Engineering) without the payment of the entrance, library and incidental fee for the first year. See Curators' Scholarships, pages 51-52.

No part of the entrance, library and incidental fee is remitted for late entrance or refunded for withdrawal.

Students entering a laboratory are required to make a deposit of \$5. From this amount there shall be deducted a fixed charge, in no case less than \$1, for each individual laboratory course, and also all extra charges for materials used or for damage to or loss of University property. If the deposit is insufficient to cover all such charges, the student will be required to make an additional deposit or deposits. The remainder of any deposit, after payment of all charges, is refunded to the student at the end of his laboratory course in any session. University Fellows and Scholars are exempt from making these deposits in the subjects in which they hold fellowships and scholarships.

Laboratory deposits and rent of rooms in the Dormitories must be paid to the Proctor; all other fees must be paid at the Boone County National Bank, to the Treasurer of the University. *All fees and deposits must be paid in advance.*

Students who by reason of sickness enjoy the privileges of the Hospital will be charged a reasonable amount therefor. See Announcement of the Hospital in this Catalogue.

Any student who does not pay promptly his dues of any sort to the University is liable to suspension or dismissal.

Dormitories:

Dormitories for Men and University Boarding Club. The two Dormitories for men, Benton Hall and Lathrop Hall, lodge 140 students, and meals can be furnished by the University Boarding Club, which is established in the Dormitories, to about 400.

Each room in Benton Hall is furnished with a double bedstead, a table and two chairs, and in Lathrop Hall with two single bedsteads, a table and two chairs. The occupants are expected to supply whatever else they deem necessary. The rooms are lighted with electric lights. The buildings are provided with a good system of steam and hot air heating and ventilation and with closets and bath rooms.

Only two students will be allowed to occupy one room, except with the consent, specially given, of the Executive Board; and when three thus occupy one room, each must pay full room rent.

The estimated cost of room rent, board, lights, and laundry is about \$2.25 a week.

The following charges are made by the University:

a. Room rent varies from \$13 to \$31 a year per student, according to the location of the room. It includes heating, water and the attention of servants.

b. The fee for dining-room permit is \$14 a year.

c. A *caution* deposit of \$5 is made by each student who rents a room or receives a meal permit for the regular session, as security against damage to or loss of University property. This deposit is refunded at the close of the student's connection with the Dormitories or Club, provided all charges made against him by the University for such damage or loss have been paid in full.

The above charges are payable on or before the first of September to the Proctor of the University.

Students in the Summer Session who rent rooms in the Dormitories are charged \$3 a term (six weeks). All such students must make a caution deposit of \$3, which is returned at the close of the term, if no damage has been done to University property.

Students in the Short Course in Agriculture who rent such rooms in the Dormitories as are vacant at the time of their entrance are charged therefor in the proportion which the length of their course of instruction bears to the entire session. Such students are charged \$4 for a meal permit.

Board in the Dormitories is managed by the University Boarding Club, a club of students who elect their own officers—president, commissary, secretary, censors, etc.; levy and collect assessments; buy their own provisions, and thus regulate their own expenses.

A steward is employed by the University to supervise the housekeeping and the preparation and serving of meals.

The Club charges each student an initiation fee of \$1. This fee is also required of students in the Short Course in Agriculture.

By special consent of the Proctor students, who do not rent rooms in the Dormitories may be allowed to take meals at the Club table upon the payment of the meal permit of \$14.

On no account will any person not duly matriculated in the University, or any person without the permit from the Proctor, be allowed to receive table board in the Club.

No part of the amount paid for room rent or meal permits shall be refunded when students sever their connection with the Dormitories or Club, but with the consent of the Proctor they may rent their rooms or assign their permits to others.

Order in the Dormitories is maintained by monitors, appointed by the Curators, who report any disorder to the Dormitory Board, consisting of the Dean of the Academic Department, the Proctor, and the Chairman of the Discipline Committee.

The University reserves the right to make changes in the rates given above before the opening of the next session.

As the accommodations of the Dormitories are limited, it is necessary

for students who wish to engage rooms to make early application for them; they are frequently all engaged before the opening of the college year. In order to reserve a room it is necessary to make a deposit of \$5, which will be credited on the room rent when paid. The rooms are assigned in the order of application, and requests for them must be made to J. G. Babb, Proctor of the University.

Dormitory for Women. Read Hall, the new Dormitory for women, will be ready for occupancy at the beginning of the next session. Information in regard to the rates and the organization and management of the Dormitory will be furnished on application to J. G. Babb, Proctor of the University.

Regulation of Boarding Houses. The University reserves the right to prescribe the rules under which its students shall board in private families, Dormitories, and Chapter Houses, or elsewhere, whether these rules are or are not published in the Annual Catalogue.

DEGREES AND CERTIFICATES.

Degrees:

The following degrees are now conferred by the University:

In the Academic Department, Bachelor of Arts (A. B.), Master of Arts (A. M.), and Doctor of Philosophy (Ph. D.).

In the School of Agriculture, Bachelor of Science in Agriculture (B. S.), and Master of Science in Agriculture (M. S.).

In the Law Department, Bachelor of Laws (LL. B.), and Master of Laws (LL. M.).

In the Medical Department, Doctor of Medicine (M. D.).

In the School of Engineering, Bachelor of Science (B. S.), in Civil Engineering, in Electrical Engineering, in Mechanical Engineering, and in Sanitary Engineering, respectively. The degrees of Civil Engineer (C. E.), Electrical Engineer (E. E.), Mechanical Engineer (M. E.), and Sanitary Engineer, are also given for graduate work.

In the School of Mines and Metallurgy at Rolla, Bachelor of Science (B. S.), and Bachelor of Science (B. S.), in Mining Engineering, in Civil Engineering, and in Chemistry and Metallurgy, respectively. The graduate degrees of Engineer of Mines (E. M.), and of Civil Engineer (C. E.), are also given.

Except that of Doctor of Laws (LL. D.), no degrees are conferred *honoris causa*.

For further information, see announcements of the respective Departments.

Certificates:

Certificates are given in the Departments of Education, and Military Science and Tactics, and to students who have completed the prescribed courses in Household Economics, and in the Training School for Nurses.

COMMENCEMENT EXERCISES.

The Commencement Exercises occupy the four days ending with the first Wednesday in June of each year. For specific days, see Calendar, page iii.

FELLOWSHIPS, SCHOLARSHIPS AND PRIZES.**University Fellowships and Scholarships:**

The University offers annually a number of fellowships yielding stipends of \$200, and scholarships with stipends of \$125. University Fellows and Scholars are exempt from payment of all fees and deposits in the subjects in which they hold fellowships and scholarships. These fellowships and scholarships will be awarded to the applicants who are best prepared and are of the highest promise in scholarship, irrespective of the lines of work they may desire to pursue. It is expected that Fellows and Scholars will be prepared for graduate work in the subject which they elect, and that they will devote themselves mainly to work in this subject. They will do no teaching, but may be called upon to render a limited amount of service to the University in other ways. Applications must be filed not later than March 15, in order to receive consideration in the award for the next Academic year. Application blanks may be obtained from the Registrar of the University.

The James S. Rollins University Scholarships:

In 1889 the Hon. James S. Rollins left six thousand dollars (\$6,000) to endow six Scholarships in the University—"the interest" on this \$6,000 "to be forever used and appropriated under the authority and by the direction of the Board of Curators of the University of the State of Missouri, for the following purposes, that is:

"To found Scholarships to be awarded by the President and Faculty of the University—the vote in each case to be by ballot—as a reward for excellence and promise in—

"*First.* The College of Arts, for the degree of A. B., fifty dollars.

*"*Second.* The College of Arts, for the degree of B. S., fifty dollars.

*The B. S. degree is no longer conferred in the Academic Department. This Scholarship is now awarded to a candidate for the A. B. degree.

"*Third.* The College of Agriculture and Mechanic Arts, for the degree of B. Agr., fifty dollars.

"*Fourth.* The College of Law, for the degree of LL. B., fifty dollars.

"*Fifth.* The College of Medicine, for the degree of M. D., fifty dollars.

"*Sixth.* The College of Engineering, for the degree of C. E., fifty dollars.

"These Scholarships are intended as a recognition of merit and character in the beneficiaries, and shall be payable on the first day of June of each year to that member of the *Junior class*, in each of the Colleges designated, who shall be adjudged entitled to it by the President and Faculty; and the names of the persons receiving said Scholarships shall be publicly announced on Commencement Day by the President of the University.

"In according these Scholarships. It is earnestly impressed upon the President and Faculty of the University, that in the mind of the donor, purely intellectual and literary ability are not alone to be considered, but that the moral character of the contestants should be regarded as a factor of no small weight in coming to a decision.

"With the earnest hope that by the means here provided, worthy young men and women may in all coming time be helped and encouraged in their struggle toward a higher life and a greater usefulness, this fund is committed to the honor and good faith of the State, whom the Board represents, and by whose authority the donation is made and accepted."

Curators' Scholarships:

By order of the Board of Curators, the student who attains the highest rank in the graduating class of any Approved School will be permitted to enter the Academic Department or the College of Agriculture and Mechanic Arts (including Engineering) without the payment of the first year's entrance, library, and incidental fee.

The following students were admitted during the session of 1902-8 under this provision:

N. Salem Brown	Buchanan College
Frank Bullivant	Poplar Bluff High School
Ruth O. Covington	Bloomfield High School
C. P. Dickinson	Clinton High School
William Franken	Norborne High School
Thomas J. Glascock	Tipton High School
Nellie M. Gordon	Columbia High School
Horace Johnson	Brookfield High School
Ethel C. Moore	Trenton High School
Newland Pettingill	Memphis High School
Pearl Shelton	Windsor High School
Mabel Squire	Joplin High School
R. E. Taylor	Miami High School
O. B. Willi	Montgomery City High School

The student attaining the highest grade, or who shall be first in merit, in taking the degree of A. B., B. S., or B. L., in the graduating class of any of the universities or colleges composing the Missouri College Union, will be admitted to this University for the first year without payment of any tuition, library or incidental fee. The Missouri College Union is now composed of Washington University, Westminster College, William Jewell College, Drury College, Central College, Missouri Valley College, St. Louis University, Park College, Tarkio College, and the University of Missouri.

Free Scholarships in the Academic Department are offered to such students from the "Masonic Home of Missouri," St. Louis, and the "Odd Fellows' Home," Liberty, as may be prepared to enter the University.

The Laws Astronomical Medal:

A medal, called the "S. S. Laws Astronomical Medal," is offered annually at Commencement to the student who stands highest in Astronomy, and has at the same time attained a high average of general scholarship. An original thesis written on some astronomical subject, and showing capacity for scientific investigation, is required.

Dachsel Prize:

Ten dollars in money, by the late Charles Dachsel, engineer, of Jefferson City, Mo., is awarded for the best thesis on the Steam Engine.

McAnally Medal:

The McAnally Medal is offered for the best essay, thesis, or poem by a member of the Senior class, competing under certain rules laid down by the founder of the prize. Subject for 1904, "Thomas Hart Benton."

Law Prize:

The Edward Thompson Company, Law Publishers, of Northport, New York, give annually to the author of the best thesis submitted by a member of the graduating class a prize consisting of a complete set of their famous American and English Encyclopedia of Law. This set consists of thirty-one volumes, and is valued at \$300.

Military Prizes:

The Curators have provided a silver cup to be awarded each year to the best drilled company.

A gold medal is usually given to the best drilled private, and a target medal to the best marksman.

Stephens Medal:

Founded by the Hon. James L. Stephens, of Columbia, and annually

awarded for the best oration by a member of the Senior class. The prize consists of a book in defense of the Christian religion, and a gold medal, for the purchase of which the annual interest on \$500 is available.

William J. Bryan Prize:

Established by the Board of Curators through a generous donation by the Hon. W. J. Bryan, of Lincoln, Nebraska. The prize consists of \$17.50 in money or a medal of equivalent value, at the option of the successful contestant, and is awarded for the best essay on some subject pertaining to the Science of Government. In 1908-4 the William J. Bryan prize will be awarded for the best essay on "The Origin and Development of Local Government in the United States," under the following conditions:

1. Competition is open to all students of the University.
2. The essays submitted shall contain not more than 2,500 words.
3. They must be in the hands of the Registrar of the University not later than 12 o'clock noon, of the first Saturday in May.
4. Each essay shall be signed with a fictitious name and be accompanied with a sealed envelope containing the real name of the writer and bearing the fictitious name on the outside.
5. An essay which is awarded a prize shall become the property of the University and be deposited in the Library.

William S. Woods Prize:

Established by the Board of Curators through a generous donation by the Honorable William S. Woods, of Kansas City, Missouri. The prize consists of \$50 in money and is awarded for the best essay on some subject pertaining to the history, people or products of Missouri. In 1908-4 the William S. Woods Prize will be awarded for the best essay on "Admission of Missouri to the Union," under the following conditions:

1. Competition is open to Juniors of all Departments of the University. (The Committee on Graduation of each Department decides on the eligibility of competitors.)
2. The essays submitted shall contain not more than 8,000 words.
3. They must be in the hands of the Registrar of the University not later than 12 o'clock, noon, of the first Saturday in May.
4. Each essay shall be signed with a fictitious name, and be accompanied with a sealed envelope containing the real name of the writer and bearing the fictitious name on the outside.
5. An essay which is awarded a prize shall become the property of the University and be deposited in the Library.

SOURCES OF AID TO STUDENTS.

The Rollins Aid Fund:

Anthony W. Rollins, M. D., an honored citizen of Boone county, father of the Hon. Jas. S. Rollins, dying in 1845, left by his will the sum of \$10,000 in trust for the purpose of educating such indigent youths of Boone county, both male and female, as might be unable to educate themselves. Three-fourths of the annual interest on the fund, according to the directions of the donor, is to be devoted to the education of the youths of Boone county, and the remaining one-fourth is to be added to the interest-bearing principal. The fund amounts now to about \$40,000. The President of the University is required, at each annual Commencement, to invite the citizens who may be present to subscribe for the enlargement of this fund. The beneficiaries of this charity are annually selected by the President of the University from the indigent youths of Boone county, male and female. In compliance with the wishes of the donor, the selection is made with reference to the moral as well as the intellectual qualities of the youths inclined to avail themselves of the advantages of the fund, preference being given, in the selection of boys, to such as evince an inclination to preach the gospel.

Applications for aid from the Rollins Aid Fund must be in writing: a blank form will be furnished by the Proctor, with whom it must be filed after it has been filled. The applicant must appear in person at the opening of the first semester, September 8, as no reservation will be made. No application should be made or will be received, unless the applicant has passed the examinations for entrance and has been duly admitted to the University. Hereafter a part of the money given to each beneficiary may be paid at the opening of the first semester and a part at the opening of the second semester.

Cadetships:

Each Senator and Representative of the General Assembly of Missouri may appoint a cadet and sometimes two cadets from his district. For further information, see announcement of the Department of Military Science and Tactics.

Student Labor:

The sum of \$5,000 has been provided by the General Assembly for student labor during the present biennial period. Applications for work should be made to the Proctor.

SOCIETIES.

Literary and Scientific:

There are connected with the University at Columbia 14 societies for students—the "Graduate Club," the "Athenaeum," the "Union Literary," the "Bliss Lyceum," the "Medical Society," the "Agricultural Society," the "Missouri State University Debating Club," the "New Era Debating Club," the "Twentieth Century Debating Club," "Der Deutsche Klub," the "Sketch Club," the "Zoological Field Club," the "English Club," and the "Engineering Society."

Musical:

The students maintain a Military Band, and a Glee Club.

Young Men's Christian Association:

The object of this organization, which dates its existence in the University from January 18, 1891, is the same as in other institutions of learning, namely, the union of Christian students in Christian work. For the past four years the Association has been rapidly growing in strength, until now it is the largest college Association in the state, employing a general secretary who gives two-thirds of his time to this work. Its membership is composed of men representing all phases of college life—oratory, athletics, debate, journalism, and the Glee Club. The work has been rich in good results.

A meeting is held every Sunday in the University auditorium, addressed by students, professors, and prominent men from Columbia and other cities. This year over 140 men have met weekly in Bible classes led by students. Over 25 meet each week to discuss foreign missions.

The Association owns a lot situated immediately in front of the University Campus, and as soon as sufficient money can be secured a building will be erected for the use of the Association. A State University is a strategic point for religious work and there are few ways in which one could make a better use of money than by giving toward the erection of this building.

At the beginning of each scholastic year a committee from the Y. M. C. A., to be recognized by their badges, meet students at the trains and freely render them valuable assistance by securing board, by introducing them to friends and to officers of the University, and by various acts of kindness. A letter sent in advance to the General Secretary of the Young Men's Christian Association, Columbia, Mo., will receive prompt and cheerful attention.

An Employment Bureau is maintained for the purpose of securing work for those students who find it necessary to work their way through

the University. Many students make their way by their own efforts, but one should have at least \$35 or \$40 to start on, and upon which to fall back when work falls. The Bureau guarantees no one a position, but helps all who apply. Those who desire help of this kind should write to the General Secretary before coming to Columbia.

Young Women's Christian Association:

This Association, which is similar in its aims and methods to the foregoing, was organized April 2, 1891. Its object is the advancement of Christian work and the development of Christian character, particularly among the young women of the University. Its meetings are held at 4 p. m. every Thursday.

A four years' course in Bible study is carried on, as well as a class in Missions and a Personal Workers' Class. There are about forty members in these classes.

The Association has found some work for students who desire to pay part of their expenses. Several social entertainments have been given during the year. The membership for this session is 128.

Alumni:

The Alumni Association is composed of all the graduates of the University. It holds an annual meeting on Tuesday of Commencement week, and, is addressed in the University auditorium by an orator previously selected from its own body.

The objects of this society are the promotion of education, especially in the halls of the Alma Mater, the reunion of early friends and co-laborers in literary pursuits, and the revival of those pleasing associations which entwine themselves about University life.

The initiation fee for membership is \$1. This is the only charge imposed upon members, as the Association possesses an endowment of \$3,000, the income of which is used in defraying expenses of the annual meeting, etc. An initiation fee sent to F. W. Niedermeyer, Secretary, Columbia, Missouri, will lead to prompt enrollment.

The officers of the Association are: Woodson Moss, '74, President, Columbia; W. H. Lynch, '68, First Vice-President, Mountain Grove. C. L. Buckmaster, '75, Second Vice-President, Pilot Grove; F. W. Niedermeyer, '94, Secretary, Columbia; S. F. Conley, '90, Treasurer, Columbia.

The University publishes an alphabetical list of its graduates with their addresses. Graduates are requested to furnish the Alumni Recorder, Columbia, Mo., with information pertaining to such compilation.

A movement for a stronger organization of the Alumni has been inaugurated. The Alumni constitute, in fact, one of the largest elements in the life of the University, and, sufficiently organized, may become the

most powerful agent in her development and prosperity. No effort should be omitted, both to strengthen the central organization at Columbia and to extend its branches throughout the State.

STUDENTS' PERIODICALS.

The students maintain and manage two periodicals. These are the *Independent* (weekly), and the *Savitar* (annual).

PHYSICAL TRAINING.

Gymnasiums:

Rooms in Academic Hall have been set aside for the gymnasiums and equipped with the necessary apparatus. Adjoining rooms have been fitted with baths and lockers.

Athletic Grounds:

In addition to the gymnasiums there are athletic grounds, with base-ball and foot-ball fields. These are enclosed, a grand-stand has been erected, and tracks constructed for bicycling and running. In recognition of the generosity of members of the Rollins family in the construction of the athletic field it has been named by the Curators "The Rollins Athletic Field."

The University has also provided an excellent golf course upon the Agricultural College Farm.

Credit for Gymnasium Work:

A credit is allowed toward the degree of Bachelor of Arts of one hour for three hours' gymnasium work per week for each of four semesters.

Public Exercises:

In addition to the usual schedule of foot-ball and base-ball games there are gymnastic contests, strength tests, basket-ball contests, tennis tournaments and field days.

THE UNIVERSITY LIBRARY.

Staff.

James Thayer Gerould	Librarian
Walter King Stone	Assistant Librarian
Duncan Burnet	Head Cataloguer
Edith Allen Phelps	Cataloguer
Jessie M. Allen	Cataloguer
Francis Potter Daniels	Cataloguer
Mary M. Butterfield	Copyist
Elizabeth May Sinclair	Copyist

The University Library comprises the General Library of the University, 10 departmental Libraries, and the Library of the School of Mines. They contain in all about 55,000 volumes. In addition to the above, students have access to the collections of the State Historical Society, which contain about 23,000 volumes. Until a suitable building is erected for its use, the General Library is housed in the west wing of Academic Hall. It is open for reference use from 8:30 to 12:30 A. M., from 1:30 to 5 P. M., and from 7 to 10 P. M., every week day, and from 2 to 5 P. M., on Sunday. All students have the privilege of reference use and the right to draw out books from the Library for home use.

A card catalogue of the collection of books is nearly completed. The University will expend for books and periodicals during the current biennial period about \$35,000. In addition to the General Library in Academic Hall, the Library contains, as before noted :

The Law Library, in the Law Building.

The Agricultural Library, in the Agricultural Building.

The Experiment Station Library, in the Agricultural Building and in various offices in other parts of the grounds.

The Chemical Library, in the Chemical Building.

The Geological Library, in the Museum Building.

The Engineering Library, comprising the collections of books on Civil, Electrical and Mechanical Engineering, in the Engineering Building.

The Medical Library, in the Medical Building.

The Classical Library, in Academic Hall.

The Political Science Library, in Academic Hall.

The Romance Library, in Academic Hall.

Donations to the Library are acknowledged in the President's Annual Report to the Board.

During the year the Librarian will deliver occasional lectures on reference-work and bibliography.

B. SCHOOL OF MINES AND METALLURGY AT ROLLA.

See announcement of this Department.

DEPARTMENTS OF THE UNIVERSITY

The University comprises the following departments :

- I—Graduate Department.
- II—Academic Department.
- III—Department of Education.
- IV—Department of Law.
- V—Department of Medicine.
- VI—Department of Military Science and Tactics.
- VII—College of Agriculture and Mechanic Arts, embracing
 - A. *School of Agriculture.*
 - B. *Experiment Station.*
 - C. *School of Engineering.*
- VIII—School of Mines and Metallurgy (at Rolla).

I. GRADUATE DEPARTMENT

I. ACADEMIC.

Admission:

Graduates of either sex of the colleges and universities comprising the Missouri College Union and of other reputable colleges and universities, and (in exceptional cases, by special permission of the Faculty) other persons of liberal education, are admitted to such graduate work as they are prepared for. Admission to the Graduate Department, however, shall not be understood as implying admission to candidacy for advanced degrees. The credentials of candidates for admission to this Department will be passed upon by the Dean of the Academic Department.

University Fellowships and Scholarships:

The University offers annually a number of fellowships yielding stipends of \$200, and scholarships with stipends of \$125. University Fellows and Scholars are exempt from payment of all fees and deposits in the subjects in which they hold fellowships and scholarships. These fellow-

ships and scholarships will be awarded to the applicants who are best prepared and are of the highest promise in scholarship, irrespective of the lines of work they may desire to pursue. It is expected that fellows and scholars will be prepared for graduate work in the subject which they elect, and that they will devote themselves mainly to work in this subject. They will do no teaching, but may be called upon to render a limited amount of service to the University in other ways. Applications must be filed not later than March 15, in order to receive consideration in the award for the next Academic year. Application blanks may be obtained from the Registrar of the University.

Graduate Club:

A club has been organized by the graduate students for the purpose of furthering their social and scholastic interests in the University and of bringing themselves into touch with graduate student life elsewhere. This Club has joined the Federation of Graduate Clubs of the leading American universities, and the courses here offered are announced in the handbook published by the Federation.

Degrees:

1. *The Degree of Master of Arts.*—Only such students are admitted to candidacy for the Master's Degree as hold a Bachelor's Degree in Arts, Letters, Science, or Philosophy, equivalent to the Bachelor's Degree of the University of Missouri. Application for the Master's Degree will be considered on the basis of one year's graduate study in the University. Candidates for this degree are required to take at least twelve (12) hours a week throughout the scholastic year, at least six (6) of which must be chosen from the courses *Primarily for Graduates*, and the remaining hours selected from those *For Graduates and Undergraduates*, as announced under the Academic Department.

Candidates for the Master's Degree must choose their courses from one general subject together with such related subjects as may be approved by the Professor in charge of the candidate's main work.

A creditable thesis evincing capacity for original research and power of independent thought, in the line of the student's previous work, shall be submitted on or before May 1 of the given year.

The subject of the thesis and the courses chosen shall be laid before the Committee on Graduate Degrees on or before December 1 of each year.

At the close of the scholastic year the University Council may, on the report of this Committee, recommend to the Board of Curators for the Master's Degree, such candidates as have satisfactorily fulfilled the conditions.

2. *The Degree of Doctor of Philosophy.*—The candidates will be ex-

pected to spend at least three years, or, if he have a Master's Degree equivalent in value to the Master's Degree of this University, at least two years in graduate study under University direction and in residence; but with the consent of the Faculty, one of these years may in either case be spent at some other institution, subject to the approval of the Committee on Graduate Degrees. The candidate must have received from some university or college a Bachelor's Degree in Arts, Letters, Science, or Philosophy equivalent to the Bachelor's Degree of the University of Missouri, and must attain in graduate study at this University a high proficiency in one branch of learning, and a respectable proficiency in at least one other. He must submit a dissertation embodying the results of original investigation, and must pass examinations in his major and minor subjects.

Candidates who have satisfactorily met these conditions may be recommended for the Doctor's Degree in the manner prescribed above for candidates for the Master's Degree.

COURSES OF INSTRUCTION.

For Courses offered, see announcement of Academic Department.

II. AGRICULTURE.

Candidates for the degree of Master of Science in Agriculture are required to do one year's graduate work at the University. This work must consist of at least 10 hours a week throughout the year and the subjects selected must be advanced courses, and must be approved by the Dean and the Committee on Graduate Degrees. For courses offered, see announcement of the School of Agriculture.

III. ENGINEERING.

Graduate work in Civil, Electrical, and Mechanical Engineering is offered at Columbia to those who have finished the Undergraduate Courses in these subjects respectively with the degree of Bachelor of Science. Students who, entering under these conditions, have completed a year of graduate work or two years of professional practice and graduate work *in absentia*, and passed satisfactory examinations thereon, and presented a thesis of real merit, will receive, according to the Course in which they have studied, the degree of Civil Engineer (C. E.), Electrical Engineer (E. E.), or Mechanical Engineer (M. E.). Graduate work in Hydraulic Engineering is offered to those who have completed the work in Civil and Mechanical Engineering.

The thesis subject shall be presented to the Committee on Graduate

Degrees on or before November 1, and the thesis shall be presented to the same Committee on or before May 1, of the given year.

IV. LAW.

One year of advanced work in Law is offered, leading to the degree of LL. M.

The Course is open to graduates of the Law Department and of other law schools who have completed an equivalent of study.

The object of this Course is to provide the practitioner with a more extended knowledge of important subjects embraced in modern law or cognate thereto than the limited time of the Undergraduate Course permits. It is also intended to afford him assistance in prosecuting the study of any particular subject or branch of law which he expects to follow in his future practice.

The Course of instruction embraces lectures, recitations and independent investigation on the following subjects :

Constitutional Law, Corporations, Insurance, Trusts, Patents, Copyrights, Law of Homicide, Theory of Jurisprudence, Practice, Parliamentary Law, advanced work on Contracts and Evidence.

The student is allowed to select any special subject in law for extended examination, to be prosecuted concurrently with elected subjects embraced in the Course. His investigations are directed by the Faculty, who advise him of the books and cases to consult, and afford him assistance and counsel.

It is believed that many licensed attorneys will find it to their advantage to take as special students such instruction.

The text-books recommended for the Graduate Course are as follows : Cooley on Constitutional Limitations ; Lewin on Trusts ; May on Insurance ; Walker on Patents ; Bishop on Criminal Law ; Thompson on Corporations ; Holland and Pollock on Theory of Jurisprudence ; Pattison's Forms ; Cushing's Parliamentary Law.

A thesis subject shall be selected and presented to the Committee on Graduate Degrees on or before November 1. The thesis shall be submitted to the same Committee on or before May 1, of the given year.

II. ACADEMIC DEPARTMENT

FACULTY.

RICHARD HENRY JESSE, LL. D.,

President, and Professor of Ancient and Medieval History.

JOHN CARLETON JONES, A. B., Ph. D.,

Professor of Latin Language and Literature, and Dean of the Faculty.

EDWARD ARCHIBALD ALLEN, Litt. D.,

Professor of English Language and Literature.

MILLARD LEWIS LIPSCOMB, A. M.,

Professor of Physics.

WILLIAM GWATHMEY MANLY, A. M.,

Professor of Greek Language and Literature.

JOHN PICKARD, A. B., Ph. D.,

Professor of Classical Archaeology and the History of Art, and Curator of the Museum of Classical Archaeology.

FRANK THILLY, A. B., Ph. D.,

Professor of Philosophy.

†BENJAMIN FRANKLIN HOFFMAN, M. L.,

Professor of Germanic Languages.

RAYMOND WEEKS, A. B., Ph. D.,

Professor of Romance Languages.

WILLIAM GEORGE BROWN, B. S., Ph. D.,

Professor of Chemistry.

JOHN RUTLEDGE SCOTT, A. B., A. M.,

Professor of Eloquence.

JOHN NELSON FELLOWS, A. M.,

Professor of Mathematics.

ISIDOR LOEB, M. S., LL. B., Ph. D.,

Professor of Political Science and Public Law.

†Absent during session of 1902-3.

CURTIS FLETCHER MARBUT, B. S., A. M.,

Professor of Geology and Mineralogy, and Curator of the Geological Museum.

GEORGE LEFEVRE, A. B., Ph. D.,

Professor of Zoology, and Curator of the Zoological Museum.

CHARLES ELLWOOD, Ph. B., Ph. D.,

Professor of Sociology.

CHARLES WILSON GREENE, A. M., Ph. D.,

Professor of Physiology and Pharmacology.

MAX MEYER, Ph. D.,

Professor of Experimental Psychology.

CLARK WILSON HETHERINGTON, A. B.,

Professor of Physical Training, and Director of Gymnasiums and Athletics.

JESSE ELIPHALET POPE, B. S., M. S.,

Professor of Economics and Finance.

FREDERICK HANLEY SEARES, B. S.,

Professor of Astronomy, and Director of the Lows Observatory.

BENJAMIN MINGE DUGGAR, M. S., A. M., Ph. D.,

Professor of Botany.

CLARENCE MARTIN JACKSON, B. S., M. S., M. D.,

Professor of Anatomy and Histology.

GLEN LEVIN SWIGGETT, A. B., A. M., Ph. D.,

Acting Professor of German.

†HENRY CAPLES PENN, A. B., A. M.,

Assistant Professor of English Language and Literature.

SIDNEY CALVERT, B. Sc., A. M.,

Assistant Professor of Chemistry.

HENRY MARVIN BELDEN, A. B., Ph. D.,

Assistant Professor of English Language and Literature.

EVA JOHNSTON, A. M.,

Assistant Professor of Latin.

†Absent during session of 1902-3.

RALPH EMERSON BASSETT, A. B., A. M.,
Assistant Professor of Romance Languages.

HERMANN BENJAMIN ALMSTEDT, B. L., Ph. D.,
Assistant Professor (in charge) of Germanic Languages.

OSCAR MILTON STEWART, Ph. B., Ph. D.,
Assistant Professor of Physics.

LOUIS INGOLD, A. B., A. M.,
Acting Assistant Professor of Mathematics.

H. V. S. JONES, A. B.,
Acting Assistant Professor of English Language and Literature.

NORMAN MACLAREN TRENHOLME, A. M., Ph. D.,
Assistant Professor (in charge) of History.

RICHARD B. MOORE, B. S.,
Instructor in Chemistry.

WINTERTON CONWAY CURTIS, A. B., A. M., Ph. D.,
Instructor in Zoology.

ROLLA ROY RAMSEY, A. B., A. M., Ph. D.,
Instructor in Physics.

ARTHUR B. COBLE, A. B., Ph. D.,
Instructor in Mathematics.

MARY IDA MANN,
Instructor in Physical Training.

HERMAN SCHLUNDT, B. S., M. S., Ph. D.,
Instructor in Physical Chemistry.

CAROLINE TAYLOR STEWART, A. M., Ph. D.,
Instructor in Germanic Languages.

FLOYD WILKINS TUTTLE, A. B.,
Instructor in Physical Training.

JONAS VILES, A. M., Ph. D.,
Instructor in History.

WILLIAM LINN WESTERMANN, A. B., Ph. D.,
Instructor in Greek Language and Literature.

GRACE SARA WILLIAMS, A. B.,
Instructor in Romance Languages.

PETER POTTER, B. S.,
Assistant in Anatomy.

ELEXIOUS THOMPSON BELL, B. S.,
Assistant in Anatomy.

ERNEST HOWARD FAVOR, A. B.,
Assistant in Botany.

HENRY C. FREUDENBERGER, B. L.,
Assistant in Physiology.

THORNTON EASLEY MOORE,
Assistant in Physiology.

NON-RESIDENT LECTURERS.

C. B. SIMCOE, M. D., Superintendent, State Colony for the Feeble Minded
and Epileptic, Marshall, Mo.,
Lecturer on Sociology.

GEORGE A. WARREN, D. D., Chaplain, State Penitentiary, Jefferson
City, Mo.,
Lecturer on Sociology.

L. D. DRAKE, Superintendent, State Reform School for Boys, Boonville,
Mo.,
Lecturer on Sociology.

C. E. RUNGE, M. D., Superintendent, St. Louis Insane Asylum, St. Louis,
Mo.,
Lecturer on Sociology.

MRS. L. N. DEBOLT, Superintendent, Industrial Home for Girls, Chil-
licothe, Mo.,
Lecturer on Sociology.

GENERAL REGULATIONS.

Requirements for Admission:

For information in regard to requirements for admission, see pages
32-38.

Tuition Charges and Fees:

For information in regard to tuition charges, fees, scholarships, etc.,
see pages 46-47.

Elective System:

All work in the Academic Department is elective; that is, the student makes such choice and combination of the studies offered in this Department as he desires, subject to certain restrictions explained below. Election is made for the entire session, except in the case of studies which are offered for only one semester. Those who elect such studies in the first semester must make a new election at the beginning of the second semester.

At the opening of the session each student makes out, on a blank form provided for the purpose, a list of the studies he wishes to pursue and deposits it with the Registrar. The list is then examined by a committee of the Faculty and if approved becomes the student's plan of work for the session (or for the semester—see preceding paragraph). If the plan presented is not in accordance with the regulations, the student is notified of the fact by the Registrar and required to present another plan.

The student may not take more than 16 nor less than 12 hours a week (Physical training not counted). But students who are candidates for the Life Certificate in the Department of Education may take 3 hours of Industrial work in any year in addition to 15 hours of Academic work. This Industrial work does not count toward an Academic degree.

When a student has elected a course that runs through both semesters, he must abide by his election unless he fails in the work of the first semester or can secure the permission of the Faculty to abandon it or to make a substitution.

Each Professor determines the special requirements for admission to the different courses offered by him or his assistants. These requirements are for the most part stated in the detailed explanation of the courses, see below. The student is advised to consult each Professor under whom he wishes to take work before making his election.

Requirements for Graduation:

The degree of Bachelor of Arts (A. B.) is the only undergraduate degree conferred in the Academic Department. In order to become a candidate for this degree a student must have met the following requirements:

1. He must have been regularly admitted to the Department. See page 32.

2. He must have completed at least twelve (12) hours in each of four subjects, and at least twenty-four (24) hours in a fifth subject, the subjects to be chosen from the following group:

Anatomy and Histology; Astronomy; Botany; Chemistry; Classical Archaeology and the History of Art; Economics; Elocution; English;

Geology and Mineralogy; Germanic Languages; Greek; History and Political Science; Latin; Mathematics; Philosophy and Psychology; Physics; Physiology; Romance Languages; Pedagogy; Sociology; Zoology.

3. He must have completed at least one hundred and twenty (120) hours in all.

By "hour" is meant one period a week for one semester.

Besides the subjects mentioned under 2 above, the following courses in other Departments are open as electives to Academic students, and the candidate may present them (to an amount not exceeding nine (9) hours in all) as a part of the one hundred and twenty (120) hours required for graduation:

From the School of Agriculture: Entomology for not more than six hours; Agricultural Chemistry, for not more than six hours.

From the Medical Department: Hygiene for not more than three hours.

From the School of Engineering: Thermodynamics, Descriptive Geometry, Electricity and Magnetism, and Mathematical Theory of Stresses, each for not more than three hours; Mechanics for not more than six hours.

From the Law Department: First year's work for not more than nine hours.

Academic students may elect Physical Training three hours a week for four semesters, and receive a credit towards the degree of Bachelor of Arts of one hour for each semester.

The candidate may also offer, as part of the one hundred and twenty (120) hours, work done in the Summer Session to an amount not exceeding the equivalent of twelve (12) hours for any one summer (see Appendix).

COURSES IN DETAIL.

[Courses designated by a number with the letter a attached, thus: 4a, 6a, are given the first semester only. Those designated by a number with the letter b attached, thus: 4b, 6b, are given the second semester only. Those designated merely by a number are continuous courses and are given both semesters.]

Anatomy and Histology

Professor JACKSON; Mr. POTTER; Mr. BELL.

For Undergraduates.

1a. Osteology. A complete unmounted skeleton is issued to every two students for their use during this Course. A deposit of \$10 is required

which is refunded less a fee of \$2 when the skeleton is returned uninjured. *T. Th. S., at 8:30.* Professor JACKSON.

2. Practical Anatomy. *Two Laboratory periods and one Recitation a week.* Professor JACKSON and Mr. POTTER.

3. Descriptive Anatomy. A recitation and demonstration Course in systematic human anatomy. Text: Gray's Anatomy, 15th Edition. *M. W. F., at 8:30.* Professor JACKSON.

4. Normal Histology. Each student prepares, stains and mounts permanently at least 75 specimens of normal tissue. Lecture, *W., at 10:30;* Laboratory, Section I, *T. F.,* Section II, *M. W., 1:30-4.* Professor JACKSON and Mr. BELL.

5b. Neurology. Including a study of the central nervous system and sense organs. Lectures and Laboratory. *Three times a week.* Professor JACKSON and Mr. POTTER.

6a. Topographic Anatomy. Lectures and Laboratory. *Three times a week.* Professor JACKSON and Mr. POTTER.

Primarily for Graduates.

9. Investigation. Problems of original research will be assigned in Anatomy or Histology. Hours to be arranged. Professor JACKSON.

Astronomy

Professor SEARES.

For Undergraduates.

1a. General Astronomy. Methods and fundamental facts underlying the science of Astronomy. Historical introduction, instruments, apparent motions of planets and stars, the solar system. *T. Th. S., at 9:30.*

2b. Modern Astronomy. Spectroscopic, photographic and photometric methods. Motions and distances of the stars; variable and temporary stars; double, multiple and binary stars; nebulae and clusters; cosmogony. *T. Th. S., at 9:30.*

Courses 1a and 2b are open to all students and may be taken independently of each other, but if one is elected the other is advised. The class room work of both Courses is supplemented by practical exercises in the Laws Observatory.

3a. General Astronomy. Open to students of junior standing who have completed the Courses in Elementary Mathematics and General Physics. *M. W. F., at 9:30.*

4a. Observatory Practice. Practical work with the instruments of the Laws Observatory. Open to students taking Course 3a. *T. Th., 7:30-10 P. M.*

5b. Spherical and Practical Astronomy. Open to students who have completed Differential and Integral Calculus and General Physics. *T. Th.*, at 10:30; one Observatory period, hours to be arranged.

6a. Spherical and Practical Astronomy. Open to students who have completed Course 5b. Lectures and recitations. *T.*, at 10:30; Observatory practice, *T. Th.*, 7:30-10 P. M.

7a. History of Astronomy. Open to students who have completed Courses 1a and 2b or 3a. *M. W. F.*, at 10:30.

For Undergraduates and Graduates.

8b. Method of Least Squares, with applications to the problems of Astronomy and Geodesy. *M. W.*, at 10:30.

9b. Interpolation and Mechanical Quadratures. The formulae of interpolation, numerical differentiation and integration developed and applied to the problems of Astronomy. *M. W.*, at 10:30.

Courses 8b and 9b are given in alternate years. Course 8b will be offered in 1903-4. Both Courses are open to students who have completed Differential and Integral Calculus.

10. Celestial Mechanics. General Introduction and Theory of Cometary Orbits. Open to students who have completed Analytic Mechanics and Elementary Differential Equations and who have a reading knowledge of French and German. Hours to be arranged.

Primarily for Graduates.

11. Celestial Mechanics.

12. Research.

Courses 11 and 12 form a continuation of Courses 10 and 6a respectively. The subjects considered are determined by the needs of the students who present themselves. Hours and credit to be arranged with the instructor.

The Laws Observatory:

The practical work of the Department of Astronomy is carried on with the instruments of the Laws Observatory.

The observatory, a building 84 feet long from east to west, and from 14 to 30 feet wide, stands on an elevated portion of the campus. The equipment consists of a 7 1-2 inch equatorial refracting telescope by Merz and Soehne, of Munich, a 2 1-10 inch transit instrument by Brunner, of Paris, a 2 1-8 inch altitude and azimuth instrument by E. & G. W. Blunt of New York, a Pickering stellar photometer and a disc photometer by Brashear, a theodolite, sidereal and mean-time clocks, sidereal break-circuit chronometer, chronograph, sextants, micrometer, spectroscope, and outfit of smaller instruments.

Clocks and instruments are mounted on piers of solid masonry, iso-

lated from the floors and walls of the buildings, and are provided with the usual electrical connections. The dome of the telescope is 18 feet in diameter. A cone 14 feet in diameter, revolving on balls, shelters the altitude and azimuth instrument.

In the year 1880, Dr. S. S. Laws, then President of the University, contributed largely from his private funds toward the improvement of the observatory building and instruments. In recognition of this generosity the Board of Curators named the observatory in his honor.

The Laws Astronomical Medal:

A medal, called the "S. S. Laws Astronomical Medal," is offered annually at Commencement to the student who stands highest in Astronomy, and has at the same time attained a high average of general scholarship. An original thesis written on some astronomical subject, and showing capacity for scientific investigation, is required.

Botany

Professor DUGGAR; Mr. FAVOR.

For Undergraduates.

1a. General Physiology and Comparative Morphology of the Cryptogams. First half of the semester, fundamental principles of plant physiology and the general relations of plants to external agencies. Second half of the semester, general morphology of a typical series of Cryptogams. *M., at 9:30; W. F., 1:30-4.*

2b. General Morphology and Histology of the Phanerogams and Elementary Ecology. A Course in elementary embryology, the forms and adaptations of representative groups, minute structure, and the factors of plant distribution. *M., at 9:30; W. F., 1:30-4.*

The elementary work in Botany is offered through Courses 1a and 2b; and these Courses, or their equivalents, are prerequisites for all other regular work in the subject. They represent a continuous treatment of general principles, but may often be taken separately to advantage. 1a, for example, is more important for students in the medical courses.

3a. Phytogeography. A Course in Geographical botany and ecology will be offered in 1903-4 to alternate (in 1904-5) with a Course (4a) in Histology and Cytology. *Three times a week. Hours by appointment.*

For Graduates and Undergraduates.

6. Mycology. Studies in the morphology and physiology of representative groups of fungi, including, also, work with cultures and culture methods. *Three times a week. Lecture, W., at 8:30; Laboratory hours by appointment.*

7a. Comparative Embryology of Chlorophyllous Plants. A study as comprehensive as the time will permit of the development and homologies of representative groups of green plants, also special work in the mitosis of the progametes. *Three times a week. Hours by appointment.*

8b. Advanced Physiology. Experimental work on nutrition and growth, the effects of stimuli and toxic agents on cell activities and development, also variation and inheritance. At least one year of Chemistry is required. *Three times a week. Lecture, W., at 10:30; Laboratory hours by appointment.*

Primarily for Graduates.

9. Research. Problems for investigation will be assigned in any of the general lines of work for which students may be prepared. A knowledge of French (or Latin) and German is essential. *Three or more times a week.*

10. Seminary. The seminary offers to advanced students an opportunity to become familiar with current work in botany. Reports on appropriate topics will be required, as well as reports on any research work in progress. *Once a week.*

Chemistry

Professor BROWN; Assistant Professor CALVERT; Mr. MOORE; Dr. SCHLUNDT; Mr. LIEPSNER; Mr. LOCKE.

For Undergraduates.

2. General Inorganic Chemistry. Lectures, laboratory work, problems and recitations. *M. W. F., at 9:30.*

3a or 3b. Organic Chemistry. (Introductory Course.) Lectures, laboratory work, and recitations. *Three times a week.*

5a or 5. Qualitative Chemical Analysis. Laboratory work, and lectures. *Three times a week.*

6a and 6b. Quantitative Chemical Analysis. Laboratory work. *Three times a week.*

12b. Technical Chemistry. *Three times a week.*

For Undergraduates and Graduates.

4. Organic Chemistry. Lectures, laboratory work, and recitations. *Three times a week.*

7. Preparation of Organic Compounds and Organic Analysis. *Three times a week.*

8b. Chemical Theory. Lectures and recitations. *Three times a week.*

9a. History of Chemistry. Lectures and recitations. *Three times a week.*

Courses 8b and 9a should be preceded by Courses 2 and 4.

10. Physical Chemistry. Lectures, laboratory work, and recitations. *Three times a week.*

11a. Electro-Chemistry. Lectures, laboratory work, and recitations. *Three times a week.*

14. Inorganic Preparations. *Three times a week.*

15. Advanced Quantitative Chemical Analysis. *Six times a week.*
Primarily for Graduates.

20. Research. This will consist principally of original work and investigations in Inorganic, Organic, and Physical Chemistry, and will be adapted in some measure to individual cases.

Course 2 is required of Engineering and Agricultural students.

Classical Archaeology and the History of Art.

Professor PICKARD.

For Undergraduates.

1. History of Modern Painting, particularly of French, English, and American Painting. Lectures and collateral reading. Critical study of representative pictures by means of lantern slides, photographs and other reproductions. *W. F., at 2.*

2. Classical Mythology. The myths as they are represented in literature and in Greek and Roman Art. Recitations and illustrated lectures.

For Undergraduates and Graduates.

6. History of Greek Art. A preliminary study of Assyrian and of Egyptian Art, followed by a study of the development of Greek Architecture and Sculpture. Lectures, collateral readings, essays, with constant use of the lantern, photographic reproductions, and models and casts in the Museum of Classical Archaeology. Greek History (Greek 6a) is recommended to the students of this Course. *T. Th. S., at 2.*

7a. Mycenaean Art or Art of Primitive Greece. The earlier discoveries at Mycenae, Tiryns and elsewhere will not be neglected, but special attention will be given to the most recent publications on Troy, Crete, and the Argive Heraeum. *M., at 8:30.*

8b. Introductory Study of Greek Vases and Vase Paintings. Reference book, Pottier's Catalogue of the Louvre Vase Collections. *M., at 8:30.*

While a knowledge of the Greek language is not an absolute prerequisite for 7a and 8b, these Courses are intended for advanced students in Greek.

9. Etruscan and Graeco-Roman Art. This Course should be preceded

by Course 6. It will deal with the earliest art of the Italian Peninsula, endeavor to show how this art reached its highest development among the Etruscans, how Etruscan influenced early Roman Art, how later Roman Art grew out of early Roman and late Greek Art modified by the circumstances and character of the Romans. Roman History (Latin 12b) is recommended to students in this Course. *M. W., at 9:30.*

10. Roman Life. A systematic study of the topography of Rome and of the extant remains particularly of Rome and Pompeii. Lectures and readings. Illustrated by the use of plans, maps, and lantern slides. As supplementary to this Course, Roman Public and Private Life (Latin 5) is recommended. *T. Th., at 11:30.*

11. History of Renaissance Painting. *First Semester:* Italian Painting. *Second Semester:* Painting of the Netherlands and of Germany. This Course should be preceded or accompanied by History 1. With Italian Painting, History 10b is also earnestly recommended. *T. Th. S., at 4.*

13. Masterpieces of Architecture, Sculpture, and Painting of Classical, Renaissance and Modern Times. Lectures fully illustrated with the stereopticon. This Course aims to show the historical development of art by the discussion of some of the finest examples in each of the three divisions mentioned. *M., at 4.*

Primarily for Graduates.

14. Topography and Monuments of Athens. Frazer's Pausanias will be taken as the basis of discussion. Reading knowledge of Greek, French and German required. *T. Th., at 8:30.*

15. Archaeological Seminary. Hours and work to be arranged.

As supplementary to all Courses offered in the history of Painting and of Sculpture the Theory of Representation (Free Hand Drawing) is recommended.

Museum of Classical Archaeology:

The Museum occupies the third floor of the west wing of Academic Hall. It is supplied with models of temples representing the three orders of Greek Architecture, and with plaster casts of representative specimens of Greek and Roman sculpture. These are arranged chronologically and on the walls are hung many framed photographs of other works of classic art. Many casts and four original specimens of Egyptian sculpture have been added during the past year. The Museum possesses a large number of unframed photographs and an extensive collection of lantern slides.

Renaissance and Modern Paintings:

The collections of photographs, lantern slides, and other means of illustrating courses in these subjects have been very largely increased dur-

ing the past year. For reproducing the color of the originals a *Kromskop* and lantern slides made by the *trichrome* process are used. The picture gallery near the Museum of Classical Archæology is hung with carbon photographs, photogravures, and other reproductions of masterpieces of painting.

Economics

Professor POPE.

For Undergraduates.

1. Elementary Economics. *First Semester:* Outlines of Economics. *Second Semester:* Economic History of England and the United States. Selected texts, private readings, and lectures. Must be preceded by History 1. *M. W. F., at 3.*

For Undergraduates and Graduates.

2. Science of Finance. Adams' Science of Finance is used as the text, but Seligman and other leading authorities are consulted freely. Open to those who have had Course 1. Should be accompanied by Political Science 7b. *M. W. F., at 8:30.*

3. Economic Problems. This Course is designed to follow Course 1. As an introduction a part of the first semester will be given to the study of the theory and technique of statistics. Some of the problems that will be considered are: hindrances to the movement of capital and labor, trade unions, arbitration, factory legislation, socialism. The work will be largely based on state and national reports. Lectures, essays, and private readings. *M. W. F., at 9:30.*

4b. Economic Geography of the United States. This Course is designed to follow Course 4a in Geology, and is only open to those students who have taken this Course and Course 1 in Economics. This Course will have for its aim the study of the growth and present distribution of the industries of the United States, and the forces that have influenced such growth and distribution. Attention will be given to trade routes, the movements of internal commerce and relation of internal development and resources to foreign commerce. In general the Course will attempt to show the relation between the natural resources and the economic activities. *Three times a week. Hours to be arranged.*

Primarily for Graduates.

5. Economic Theory. Dynamics. Lectures and essays. *Three times a week. Hours to be arranged.*

6. Seminary. Open to graduates and those who, in the opinion of the instructor, are fitted for the work. *Two, three, or four times a week. Hours to be arranged.*

Elocution

Professor SCOTT.

1. *First Semester:* Foundation theory and practice of vocal culture and expression. Breathing for conscious voice-support; phonetics, applied to syllabic form and enunciation; stress, inflection, quantity, and quality; phrasing; movement and rhythmus; melody, intonation, and cadence; analysis of short prose and poetic passages, for the recognition and establishment of the correlation of utterance with thought and feeling. Text-book; Raymond's Orator's Manual. *Second Semester:* Principles of bearing, walk, and gesture; the practice of short oratorical extracts, with the study of the *rationale* of appropriate utterance and action. To be followed by the study of more extended passages and entire compositions, prose and poetic, as readings and recitations. Text-book: Raymond's Orator's Manual. Section I, *T. Th. S.*, at 9:30; Section II, *M. W. F.*, at 10:30; Section III, *T. Th. S.*, at 11:30; Section IV, *M. W. F.*, at 2.

2. *Advanced Work.* The interpretative study of plays, scenes, poems, and imaginative literature generally. Selections will be made jointly by the Professor in charge and the class, from Shakespeare, Milton, Scott, Tennyson, Browning, Dickens, Poe, Ruskin, and other representative writers. The emotional and spiritual, as well as the intellectual, elements of literature will be the objects of study and embodiment. This Course is continuous through two semesters, and must be preceded by Course 1. Section I, *T. Th. S.*, at 10:30; Section II, *M. W. F.*, at 11:30.

3. *Teachers' Course.* This Course is offered to students in the Department of Education, and counts toward the Academic degree and the Life Certificate to teach. It must be preceded by Course 1, and will comprise: (a) The criteria of vocal expression—time, pitch, quality, and force—with copious examples; (b) The method of teaching children to read. Text-book: S. H. Clark's *How to Teach Reading in the Public Schools*. *W.*, at 3.

English

Professor ALLEN; †Assistant Professor PENN; Assistant Professor BELDEN;
Acting Assistant Professor JONES; Mr. BRADSHER; Mr. CALDWELL;
Miss HAMILTON; Miss WINSLOW.

For Undergraduates.

1. *English Composition and Rhetoric.* Detailed study and practice in Construction and the Kinds of Composition. Lectures, exercises and themes. Penn's Outline and Exercises, and A. S. Hill's Principles of Rhetoric. Class-room study of literature illustrative of the different kinds of Composition. Recommended for the first year. Sections I, II, and V.,

†Absent during session of 1902-3.

M. W. F., at 8:30; Sections III and IV, *T. Th. S.*, at 8:30; Section VI, *M. W. F.*, at 11:30. Assistant Professors PENN and BELDEN.

2a. Higher Composition, expository and argumentative. Must be preceded by 1 or its equivalent. *M. W. F.*, at 11:30. Assistant Professor BELDEN.

3. English Literature. General View. *First Semester*: Chaucer to Shakespeare. *Second Semester*: Milton to the present. Recommended as preliminary to other Courses in Literature. Section I, *T. Th. S.*, at 9:30; Section II, *T. Th. S.*, at 10:30; Section III, *M. W. F.*, at 10:30. Professor ALLEN and Assistant Professor BELDEN.

4. English Literature. Nineteenth Century. *First Semester*: The Romantic Revival (1789-1830). *Second Semester*: The Scientific Movement and its influence (1830-1890). Lectures. Class-room study of texts, parallel readings, and occasional essays. *T. Th. S.*, at 10:30. Assistant Professor PENN.

10b. American Literature. (a) Sectional Development; (b) Growth of Nationality; (c) Present Tendencies. The leading writers in prose and verse will be considered first as to their intrinsic worth and secondly as illustrative of national development. *M. W. F.*, at 11:30. Assistant Professor BELDEN.

11. *First Semester*: History of the English Language. Lectures and text-book. *Second Semester*: Study of Modern Prose Style, based upon masterpieces of representative authors. Essays and reports. *T. Th. S.*, at 11:30. Professor ALLEN.

For Undergraduates and Graduates.

5. English Literature. Eighteenth Century. *First Semester*: Dryden and Pope. *Second Semester*: Swift and the Novelists. *W. F.*, at 9:30. Assistant Professor BELDEN.

6. English Literature. Seventeenth Century, exclusive of the Drama. *W. F.*, at 9:30. Assistant Professor BELDEN.

7. English Literature. Shakespeare. Eight to ten selected plays; class-room reading and interpretation; detailed study of style. *M. W. F.*, at 3. Assistant Professor PENN.

8. English Literature. The English Drama. *First Semester*: Chief Plays of Shakespeare, in approximate chronological order. A study of the development of Shakespeare's art and genius. *Second Semester*: The English Drama (exclusive of Shakespeare) from its beginnings to the Restoration (1250-1660). Lectures. Selected plays, and reports; occasional essays. *W. F.*, at 10:30. Assistant Professor PENN.

9. English Literature. Tennyson and Browning. Readings, class-room study and interpretation of texts, and occasional papers by members of the class. *W. F.*, at 10:30. Assistant Professor PENN.

12. Anglo-Saxon. Prose and Poetry. *M. W. F., at 11:30.* Professor ALLEN.

13. Middle English. *W. F., at 8:30.* Professor ALLEN.

14a. The French Element in English. Knowledge of French and Latin necessary. *W. F., at 9:30.* Professor ALLEN.

Primarily for Graduates.

15. Anglo-Saxon (Advanced Course). *First Semester:* Beowulf; Anglo-Saxon grammar (phonology), and brief history of the language. *Second Semester:* Cynewulf, and selected miscellaneous poems; history of Anglo-Saxon literature. *T. Th. S., at 3.* Assistant Professor PENN.

16. Anglo-Saxon Prose. Seminary. *M. W. F., at 3.* Assistant Professor BELDEN.

Courses 5 and 6, and Courses 8 and 9, are give only in alternate years. Students will be admitted only to such courses as they are prepared for. They should in all cases consult the Professor before making choice of a course.

A special medal, known as the "McAnally Medal," is offered for the best essay, thesis, or poem by a member of the Senior class. Subject for 1904, "Thomas Hart Benton."

Geology and Mineralogy

Prof. MARBUT; Mr. SWEET.

For Undergraduates.

1. General Geology. This Course is designed to meet the requirements of students in Engineering and such Academic students as intend to take up any of those occupations which are intimately connected with the materials of the Earth's crust, such as mining, real estate dealing, geological surveying, topographic surveying, forestry or agriculture. The Course deals with the constituents of the Earth's crust, their arrangement and distribution and with the action of the geological processes. The laboratory and field work will include the mapping, geologically, of an area of five square miles in the vicinity of Columbia, and the study of the important minerals and rocks of the Earth's crust.

This Course will take the place of Courses 1 and 3 offered in the Catalogue of 1901-2. Lecture, *M., at 10:30*; Laboratory, *T. Th., 1:30-4.*

2. Physiography of North America and Europe. A detailed study of the morphology of the surface of these two continents. It is designed especially for students who intend to specialize in History, Economics or Sociology. *T. Th. S., at 8:30.*

3a. The Material Resources of North America. This Course is offered especially for students who are doing special work in Economics and will precede Course 4b of that department.

The work of the Course will consist of the study of the nature, distribution, mode of occurrence and abundance of the various constituents of the Earth's crust which constitute the basis of material wealth. *M. W. F., at 9:30.*

4a. Agricultural Geology. A Course of study designed to illustrate the relation between Agriculture and Geology. Soils, fertilizers (mineral), structural material, water-supply, earth structure, composition, and morphology will all be considered in relation to their origin, development and utilization. *Three times a week.*

5a. or 5b. Meteorology. Recitations, lectures, and laboratory work. *Three times a week.*

Facilities will be offered for work in mineralogy and petrology, to students prepared to do such work. It will be almost exclusively laboratory work.

For Undergraduates and Graduates.

8. Field Geology. The detailed study, with the preparation of reports and maps, of geologically important districts. The selection of the area to be studied may be made by the student with the approval of the Professor.

9. Geomorphology. Special field and laboratory study of land form.
* *Primarily for Graduates.*

(See Graduate Circular).

Course 1 is required of students in Chemical Engineering, and Course 4a of Seniors in Agriculture.

Germanic Languages

†Professor HOFFMAN; Assistant Professor ALMSTEDT (*in charge*); Acting Professor SWIGGETT; Dr. STEWART.

For Undergraduates.

1. Beginning Course in German. Texts: Thomas' Practical Grammar, Vos' Materials for German Conversation, easy prose reading. Section I, *M. W. F., at 8:30*; Section II, *T. Th. S., at 8:30*; Section III, *M. W. F., at 10:30*. Professor HOFFMAN and Dr. STEWART.

2. Course in German Reading, Syntax and Composition. *First Semester*: Reading from authors like Storm, Hauff, Baumbach, Freytag; on the basis of the text, drill in grammar (questions and answers in German). German dictation, study of the German Idiom. *Second Semester*: In-

†Absent during session of 1902-3.

tensive composition work. This will lead to German theme-writing. Prerequisite, Course 1. Section I, *M. W. F.*, at 9:30; Section II, *T. Th. S.*, at 11:30. Dr. STEWART.

3. Advanced Reading Course. Primarily a Course in prose reading. Works dealing with history, political economy, philosophy will serve as the basis of study; upon these, occasional paraphrases in German. This Course will especially aid students who need German in their advanced work, in subjects such as history, philosophy, etc. Prerequisite, Courses 1 and 2. *M. W. F.*, at 11:30. Assistant Professor ALMSTEDT.

For Undergraduates and Graduates.

4. Schiller. This Course will consist in the study of Schiller's *Jungfrau von Orleans*, *Maria Stuart*, *Braut von Messina*, *Wilhelm Tell*, *Wallenstein*; composition; lectures on Schiller's life and works. Prerequisite, Courses 1, 2, 3. *T. Th. S.*, at 10:30. Assistant Professor ALMSTEDT.

5. Goethe. In the first semester a careful study will be made of *Egmont*, *Goetz von Berlichingen*, *Hermann und Dorothea*; the second semester will be given to the study of *Iphigenie*, *Tasso*, *Faust*. Essays written in German; lectures from time to time on other works of Goethe. The Course is conducted wholly in German, and requires, therefore, a knowledge of spoken German. *M. W. F.*, at 9:30. Professor HOFFMAN.

6b. Deutsche Aufsätze und Stilübungen. Advanced Course in German theme-writing; discussions of grammatical, syntactical, and stylistic points. This Course is intended for teachers of German, or for students who propose to become teachers of German; conducted in German. *T. Th. S.*, at 9:30. Assistant Professor ALMSTEDT.

7a. German Lyric Poetry of the Eighteenth and Nineteenth Centuries. An intensive study of representative poems; discussions, papers and lectures. This Course will be conducted in German, and a knowledge of spoken German is, therefore, a prerequisite. *M. W. F.*, at 10:30. Assistant Professor ALMSTEDT.

8a. Lessing and his Time. This Course is to comprise a study of the condition of German literature in Lessing's time, his criticisms, and his teachings as applied to his own dramas. *T. Th. S.*, at 2. Professor HOFFMAN.

9b. The German Drama in the first half of the Nineteenth Century. In lectures the tendencies and development of the drama during this time will be studied; plays of the leading dramatists will be discussed, and written reports required, from time to time, on topics assigned. *T. Th. S.*, at 2. Professor HOFFMAN.

10. Outline Course in German Literature. This Course is intended to give the student a survey of the field of German literature, from its beginning to the present time. Lectures will be given mainly in English. A reading knowledge of the German language is required, work equivalent to Courses 1, 2, 3. *T. Th. S., at 9:30.* Dr. STEWART.

Primarily for Graduates.

11a. History of German Literature in the time of the Reformation and Renaissance (1500-1750). *T. Th. S., at 10:30.* Professor HOFFMAN.

12b. History of German Literature from Klopstock through the period of Romanticism. Courses 11a and 12b are to give the student an insight into the development and decline of literary tendencies, forms, ideals, and the influences that helped to develop them or to accelerate their decline. *T. Th. S., at 10:30.* Professor HOFFMAN.

13a. Introduction to the Study of Middle High German. Paul's *Mittelhochdeutsche Grammatik* (5. Aufl., Halle, 1900); phonology, inflections, and syntax, Hartmann von Aue's *Gregorius* (Hermann Paul, 2. Aufl., Halle, 1900); interpretation of the text; etymology; comparison of phraseology and meaning of words with modern German. *M. W. F., at 11:30.* Professor HOFFMAN.

14b. A Study of Selected Parts of the Nibelungenlied. Lectures on the Nibelungesage and the literature of the Middle Ages. *M. W. F., at 11:30.* Professor HOFFMAN.

15a. Historical German Grammar. This is especially adapted to those who are fitting themselves to teach German. A knowledge of Gothic, Old High German, and Middle High German, though very desirable, is not required. Texts: Otto Behagel, *Die deutsche Sprache* (Leipzig-Prag, 1901). *M. W. F., at 11:30.* Dr. STEWART.

16b. Old High German. A study of Old High German phonology and forms; critical reading of Old High German texts. A knowledge of Gothic should precede this Course. Texts: Braune, *Althochdeutsche Grammatik* ² (Halle, 1891); Braune, *Althochdeutsches Lesebuch* ⁴ (Halle, 1897). *T. Th. S., at 11:30.* Assistant Professor ALMSTEDT.

17. Seminary in Old High German. The exercises will lead the student to an appreciation of critical work, besides giving him a broader acquaintance with the language, literature, and culture of the Old High German period. Prerequisite, Course 14b. Texts: Same as in 14b, and MSD.³ (Berlin, 1892). *Twice a week.* Assistant Professor ALMSTEDT.

18a. Gothic. A consideration of Gothic phonology, morphology, and syntax in connection with the reading of selections from the Bible trans-

lation of Ulfilas. The relationship of Gothic to Indo-European and to later Germanic dialects receives attention in this Course. *T. Th. S., at 11:30.* Assistant Professor ALMSTEDT.

19b. Old Saxon. The reading of the Heliand with references to Holthausen, *Altsaechsisches Elementarbuch.* *M. W. F., at 10:30.* Assistant Professor ALMSTEDT.

Greek

Professor MANLY; Dr. WESTERMANN; Mr. FREUDENBERGER.

For Undergraduates.

1. Elementary Greek. This Course is intended for students who have not had an opportunity of studying Greek in the schools where they were prepared, or who have neglected to do so. Thorough drill will be given on forms, and on the fundamental principles of syntax by daily written and oral exercises. Stress will be laid on the early acquisition of vocabulary with a view to taking up as soon as possible the reading of some easy Greek. The text-books used are White's First Greek Book, and Gleason's Gate to the Anabasis, or Macmillan's Greek Reader. *M. W. F., at 8:30.* Professor MANLY.

2. Xenophon's Anabasis. The first four books of the Anabasis will be read with the necessary study of the historical setting. A thorough review will be given in the syntax, and in the Attic forms as a basis for future work in the department. Goodwin and White's Anabasis; Pearson's Greek Prose Composition; Goodwin's Greek Grammar. *T. Th. S., at 10:30.* Dr. WESTERMANN.

3. Lysias and Homer. *First Semester:* Selected Oration of Lysias. Together with the translation and the necessary grammatical review, the style of Lysias and his place in Greek oratory will be discussed. Attention will be given to the history of the period and to court procedure at Athens in so far as it is necessary to an understanding of the orations read. Wait's Oration of Lysias; Bridgmann's Parallel Exercises in Lysias. *M. W. F., at 9:30.* Dr. WESTERMANN.

Second Semester: Homer's Odyssey. The work will include a study of the dialect of Homer, the reading of four or five books, special attention being given to reading metrically, and, in addition, the reading of the rest of the poem in English translation together with discussions of the manners and customs of the Homeric Age. Many photographs and stereopticon slides are used in illustrating the subject. The text-books used are Perrin and Seymour's School Odyssey I-IV, IX-XII, and Jebb's Introduction to Homer. *M. W. F., at 9:30.* Professor MANLY.

4a. Greek Tragedy. The origin and development of Greek tragedy

will be considered, and special study will be made of the art of Sophocles as exhibited in his *Oedipus Tyrannus*, and *Oedipus at Colonus*. The text books used are Earle's *Oedipus Tyrannus*, and Campbell and Abbott's *Oedipus at Colonus*. This Course should be accompanied by the Course in Greek Theater (18a). *T. Th. S.*, at 8:30. Professor MANLY.

5b. Thucydides. In the Course Book VII will be read in class, and Thucydides will be discussed as a writer and as a historian. The Sicilian expedition will be carefully investigated. *T. Th. S.*, at 8:30. Dr. WESTERMANN.

6a. History of Greece to the Roman Conquest. This Course deals with the political, social, and intellectual history of the ancient Greeks in a comprehensive manner. Botsford's *History of Greece* will be used as an outline, but reading will be assigned in the standard histories, and in translations of Herodotus, Thucydides, Xenophon, and other Greek writers. The work will be illustrated by maps, photographs, and stereopticon slides. No knowledge of the Greek language is required for this Course, and it may be counted toward a major or a minor in either Greek or History. *T. Th. S.*, at 9:30. Dr. WESTERMANN.

7. Greek Prose Composition (Advanced course). After a brief review of the general principles of syntax, large amounts of connected discourse will be written after the models of the best prose writers. Along with this the finer points of syntax will be considered. This Course is intended especially for those who expect to teach Greek. *Th.*, at 11:30. Dr. WESTERMANN.

8a. Demosthenes. This Course will embrace the *Olynthiacs* and *Philippic orations* as being most characteristic of the life-struggle of Demosthenes. Combined with this will be a general survey of the development of Greek oratory. The latter part of the semester will be spent upon Greek lyric poetry. *T. Th. S.*, at 8:30. Dr. WESTERMANN.

9b. Aristophanes. Selected comedies will be read, and the origin and development of comedy will be considered. Attention will also be given to the life of the people as revealed in the plays. *T. Th. S.*, at 8:30. Professor MANLY.

10. Greek Literature in English Translation. This Course is especially designed for non-classical students who desire to obtain a knowledge of Greek literature and of its influence on Roman and modern literatures. The work will be based on a text-book with assigned readings in the standard translations of the most important Greek classics. *F.*, at 3. Dr. WESTERMANN.

11a. Greek Mythology. The aim of this Course will be to familiarize the student with the myths of Greece as being necessary to a proper

appreciation of literature in general. The work will be adapted especially to the needs of students of English and of Greek literature. Gayley's *Classic Myths* will be made the basis of the work, and selected pieces of English literature and of Greek literature in English translation will be read for purposes of illustration. *T., at 2.* Professor MANLY.

12. New Testament and Modern Greek. *First Semester:* New Testament Greek. The purpose of this Course is to consider the language of the New Testament compared with Attic Greek. For this purpose selected portions will be read and considered in class, while other portions will be assigned for private reading. *T. Th., at 3.* Professor MANLY.

Second Semester: Modern Greek. Stories of modern Greek writers will be read together with daily papers published in Athens. *Th. S., at 3.* Professor MANLY.

For Graduates and Undergraduates.

13a. The Greek Theater. The origin and development of the Greek Theater will be considered, and disputed points in the structure of the theater, and in the presentation of plays will be discussed. The basis of the work will be Doerpfeld and Reisch's *Das Griechische Theater*. *T., at 11:30.* Professor MANLY.

14. Greek Life. The manners and customs of the Ancient Greeks are dealt with in detail, such as early childhood, toys and sports, education, houses, furniture, dress, athletics, marriage, death, burial, etc. The work consists of lectures, assigned readings, and reports, and is illustrated by maps, charts, photographs, and stereopticon views. *W. F., at 2.* Professor MANLY.

15. Homer. The whole of the *Illiad* and *Odyssey* will be read during the year with especial attention to the antiquities. A special subject will be assigned each student for investigation. Teubner text editions of the poems should be secured in advance. *W. F., at 3.* Professor MANLY.

16. Herodotus. Rapid and extensive reading together with a consideration of the history of the Persian wars. Hours to be arranged.

Primarily for Graduates.

17. Seminary. This work will be conducted jointly by Professor Manly and Dr. Westermann, and will be adapted to the needs of the graduate students in attendance.

History

Assistant Professor TRENHOLME (*in charge*); Dr. VILES.

For Undergraduates.

1. European History. An introductory Course in which the history of the nations of Europe will be dealt with in as broad and comprehen-

sive a manner as is consistent with thoroughness of knowledge and definiteness of outline. The Course will be conducted by means of lectures, assigned readings, oral and written quizzes, and examinations. Adams' "European History" (Macmillan) will be used as the outline text. This Course is required of all students who wish to take other courses in History, Economics, Political Science and Public Law, and Sociology, and is strongly recommended for those intending to take courses in the History of Art. *M. W. F.*, at 9:30. Assistant Professor TRENHOLME and Dr. VILES.

The two following Courses in History for Undergraduates are offered by the departments of Greek and Latin.

6a. History of Greece to the Roman Conquest. This Course deals with the political, social, and intellectual history of the ancient Greeks in a general and comprehensive manner. It is given by the Greek Department as Greek 6a and may be counted toward a major or a minor in either Greek or History. *T. Th. S.*, at 9:30. Dr. WESTERMANN.

12b. History of Rome to the Fall of the Empire in the West. This Course will treat of the rise and development of the Roman state with special reference to the politics, culture, and society of the Romans. It is given by the Latin Department as Latin 12b and may be counted toward a major or a minor in either Latin or History. *T. Th. S.*, at 9:30. Dr. WESTERMANN.

For Undergraduates and Graduates.

2. American History. A general survey of American history from the Age of Discovery and Colonization to the present time. A detailed study will be made of colonial institutions, the development toward independence and union, and the political and territorial development of the United States. The Course will consist of lectures, written quizzes on assigned reading, two theses, and examinations. It is desirable that students procure the Epoch Series of American History (Longmans) for use as an outline in the Course. *M. W. F.*, at 11:30. Dr. VILES.

3a. Modern Europe. The history of Continental Europe in the eighteenth and nineteenth centuries, with special attention to the French Revolution and its results, and to the development of nationality and constitutional government in the nineteenth century. *T. Th. S.*, at 9:30. Dr. VILES.

4b. History of Missouri. A survey of Missouri history from the settlement of Louisiana to the present time. *T. Th. S.*, at 9:30. Dr. VILES.

5b. History of France to the Sixteenth Century. This Course deals with French history from the Treaty of Verdun to the reign of Francis

I. The leading events of the period and the chief features of constitutional development will be treated in detail, special emphasis being laid on the rise and development of the French monarchy. Ability to read French will be desirable but not essential. *M. W. F., at 9:30.* Assistant Professor TRENHOLME.

8a. Modern England. The political and constitutional history of England since 1688. Especial attention will be given to the rise of parties, to the development of cabinet government, and to Parliamentary Reform. *T. Th. S., at 10:30.* Dr. VILES.

9a. Medieval History: Church and State in the Middle Ages. A detailed study of medieval history and institutions. *T. Th. S., at 11:30.* Assistant Professor TRENHOLME.

10b. The Age of the Renaissance. A Course dealing with the rise of Italian Humanism and the spread of the Renaissance throughout Europe generally. Special attention will be given to politics, literature, and art of the period. Students who elect this Course are advised to take also Course 11 in the History of Art. *T. Th. S., at 11:30.* Assistant Professor TRENHOLME.

11b. The Era of the Reformation. A study of the causes, events, and consequences of the religious revolutions of the sixteenth century with special attention to the influence of the Reformation on politics and society. Omitted 1908-4. *T. Th. S., at 11:30.* Assistant Professor TRENHOLME.

Courses 10b, and 11b, will usually be given in alternate years.

18b. Course for Teachers. Lectures on the purposes and methods of the teaching of history, on the use to be made of text-books and works of reference, and on training the pupils to a proper and just appreciation of the value of history. *T., at 2.* Assistant Professor TRENHOLME and Dr. VILES.

Primarily for Graduates.

14. English Constitutional and Legal History during the Formative Period. A detailed and careful examination of the formation of the English Constitution and of the growth and development of governmental and legal institutions. *M. W. F., at 10:30.* Assistant Professor TRENHOLME.

15a. Tudor and Stuart England. The constitutional and political history of England from 1485 to 1688. *Three times a week.* Omitted 1908-4. Dr. VILES.

16b. Historical Method. A Course of training for advanced students in history in the nature of historical research, the methods to be used, auxiliaries to historical study, use of documents, etc. *Once a week.* Assistant Professor TRENHOLME.

18. Seminary in Medieval History. A research Course on some special topic to be selected as far as possible with reference to the wishes of the students and the resources of the library. Some little knowledge of Latin will be requisite, and ability to use French and German will be desirable. *May be elected for 2, 3, or 4 hours.* Assistant Professor TRENHOLME.

20. Seminary in English Institutions, Legal and Governmental, during the Middle Ages. A Course affording opportunity for original research in English Constitutional and Legal History. The University Library and the Law Library both contain valuable material in this field. *May be elected for 2, 3, or 4 hours.* Assistant Professor TRENHOLME.

22. Seminary in American History and Institutions. A research Course in selected topics in Colonial Institutions and History and the political and institutional development of the United States. In the assignment of topics an effort will be made to follow the individual preferences of students. In this connection it should be noted that the Library of the State Historical Society offers exceptional opportunity for research in Missouri History. *May be elected for 2, 3, or 4 hours.* Dr. VILES.

Latin

Professor JONES; Assistant Professor JOHNSTON; Dr. WESTERMANN.

For Undergraduates.

1. Vergil and Cicero, De Amicitia and De Senectute, with sight reading. Text-books: Greenough and Kittredge's Vergil; Bennett's Cicero; Allen and Greenough's Latin Grammar; Guerber's Myths of Greece and Rome. Section I, M. W. F., at 9:30; Section II, T. Th. S., at 9:30; Section III, M. W. F., at 8:30. Assistant Professor JOHNSTON and Dr. WESTERMANN.

2. Latin Prose Composition (Elementary Course). M., at 2. Assistant Professor JOHNSTON.

3. Livy and Horace. Text-books: Lord's Livy; Shorey and Kirkland's Horace; Allen and Greenough's Grammar. Must be preceded by Course 1. Section I, M. W. F., at 11:30; Section II, T. Th. S., at 11:30. Assistant Professor JOHNSTON and Dr. WESTERMANN.

4. Latin Prose Composition. (Second Course). Text-book: Gildersleeve and Lodge's Latin Composition. Must be preceded by Course 2. F., at 11:30. Assistant Professor JOHNSTON.

5. Roman Public and Private Life. (a) Cicero and Pliny, selected letters; (b) Juvenal and Martial. Must be preceded by Courses 1 and 3. M. W. F., at 8:30. Professor JONES.

7. Rapid Reading. Selections from the historians. Must be preceded by Courses 1 and 3. *Th. S., at 8:30.* Professor JONES.

11. Roman Literature. Characteristic selections. Must be preceded by Courses 1 and 3. *T. Th. S., at 11:30.* Assistant Professor JOHNSTON.

12b. History of Rome to the fall of the Empire in the West. This Course will treat of the rise and development of the Roman state, with special reference to the politics, society and culture of the Romans. No knowledge of Latin required. This Course may be counted for a major or minor in either Latin or History. *T. Th. S., at 9:30.* Dr. WESTERMANN.

For Undergraduates and Graduates. .

6. Catullus, the Elegiac Poets and Martial. Must be preceded by Courses 1, 3, and 5. *T. Th. S., at 8:30.* Professor JONES.

8. General Introduction to the Science of Language. This Course is intended for students of all departments who have linguistic interests. *M., at 10:30.* Professor JONES.

9. Roman Drama (Plautus and Terence). Must be preceded by Courses 1, 3, and 5. *T. Th. S., at 10:30.* Assistant Professor JOHNSTON.

10. (a) Tacitus, Annals; (b) Seneca. Must be preceded by Courses 1, and 3. *W. F., at 10:30.* Dr. WESTERMANN.

13. Latin Prose Composition (Advanced Course). Must be preceded by Courses 2 and 4. *T. Th., at 8:30.* Assistant Professor JOHNSTON.

Primarily for Graduates.

15. Seminary. Critical study of a selected author. For the session of 1903-4 Plautus has been chosen. Hours to be arranged. Professor JONES.

16. History of the Latin Language. Sounds, inflections, syntax. (Not given in 1903-4). *M. W. F., at 10:30.* Professor JONES.

Mathematics

Professor FELLOWS; Acting Assistant Professor INGOLD; Dr. COBLE.

For Undergraduates.

1. Trigonometry. Solid Geometry and Analytic Geometry. *M. W. F., at 11:30; T. Th. S., at 11:30.* Acting Assistant Professor INGOLD and Dr. COBLE.

2. Advanced Algebra. *M. W. F., at 9:30; T. Th. S., at 10:30; M. W. F., at 10:30.* Professor FELLOWS, Acting Assistant Professor INGOLD and Dr. COBLE.

3. Analytic Geometry, Differential and Integral Calculus. *T. Th. S., at 8:30.* Acting Assistant Professor INGOLD.

16. Analytic Geometry, Differential and Integral Calculus. *M. T. W. Th. F. S., at 8:30.* Professor FELLOWS and Dr. COBLE.

Courses 3 and 16 are open to students who have taken Course 1.

4. General Course. *T. Th. S., at 9:30.* Dr. COBLE.

For Undergraduates and Graduates.

5. Differential and Integral Calculus. *T. Th. S., at 9:30.* Professor FELLOWS and Acting Assistant Professor INGOLD.

Course 5 is open to students who have taken Course 3.

6. Theory of Equations and Determinants. Introduction to the theory of invariants. *M. W. F., at 9:30.* Professor FELLOWS.

7a. Infinite Series and Products. *M. W. F., at 8:30.* Professor FELLOWS.

8b. Solid Analytic Geometry. *M. W. F., at 8:30.* Professor FELLOWS.

9. Advanced Analytic Geometry. *M. W. F., at 11:30.* Acting Assistant Professor INGOLD.

10. Projective Geometry. *M. W. F., at 4.* Dr. COBLE.

11. Differential Equations. *T. Th. S., at 8:30.* Professor FELLOWS.

Primarily for Graduates.

12. Spherical Harmonics and Potential Function. *M. W. F., at 10:30.* Professor FELLOWS.

13. Theory of Functions (Introductory Course). *T. Th. S., at 4.* Acting Assistant Professor INGOLD.

14. Theory of Functions (Second Course). *M. W. F., at 3.* Professor FELLOWS.

15. Modern Algebra. Hour to be selected. Professor FELLOWS.

See School of Engineering for Courses in Mechanics open to Academic students.

Philosophy and Experimental Psychology

PHILOSOPHY.

Professor THILLY.

For Undergraduates.

1. Logic. A study of the fundamental principles of deductive and inductive inference and their practical application, together with an examination of the most general fallacies committed in reasoning. *W. F., at 10:30.*

2a. Ethics. An examination of the basal concepts of ethics: the nature of ethics; theories of conscience; the psychology of conscience; theories of the highest good; critique of hedonism; energism; egoism

and altruism; optimism and pessimism; character and freedom. *T. Th. S., at 9:30.*

3b. Practical Ethics. Application of the principles underlying conduct. The following topics will be discussed: virtues and vices; self-control; the bodily life; the economic life; the spiritual life; the love of honor; benevolence; justice; charity; veracity; the Greek ideal of conduct; the primitive Christian ideal; the modern ideal. *T. Th. S., at 9:30.*

4. The Problems of Philosophy. A consideration of the fundamental problems of philosophy, and their solution. The following subjects will be taken up: the nature of philosophy; its relation to the sciences and religion; materialism; dualism; spiritualism; parallelism and monism; atomism; mechanism; evolutionism; theism; pantheism; empiricism; rationalism; scepticism; criticism; realism; idealism. *W. F., at 2.*

For Undergraduates and Graduates.

5. History of the Development of Thought. The evolution of thought will be traced from the early Greek times down to the present. Particular stress will be laid on the following movements: Greek and Roman philosophy; the Jewish religion; primitive Christianity; Gnosticism; the Christian Fathers; Scholasticism and Mysticism; the Renaissance and Reformation; the Rationalists; the Empiricists; the Critical philosophy of Kant; the post-Kantian Idealists; Herbart and Schopenhauer; the Positivists; the philosophy of evolution; Lotze, Fechner, and Hartmann. *T. Th. S., at 10:30.*

6. Advanced Ethics. A critical study of modern ethical theories, with a view to reaching an independent philosophy of conduct. *T. Th. S., at 11:30.*

Primarily for Graduates.

7. Seminary in the History of Philosophy. Kant's Theory of Knowledge. An examination and criticism of Kant's *Kritik der reinen Vernunft*. This Course is open only to students who have had the necessary preparation in Logic, Psychology, Ethics, and the History of Philosophy, and possess a reading knowledge of German. *Three times a week. Hours to be arranged.*

EXPERIMENTAL PSYCHOLOGY.

Professor MEYER.

For Undergraduates.

1. Psychology. Introductory Course. This Course is intended to give a general survey of the whole field of Psychology, either as a part of a liberal education or as a preparation for professional study in Education, Law, or Medicine. The Course covers the following ground: Structure and function of the sense organs and the nervous system.

Sensations; their classification and analysis. Perception of space and time. Movement and action. Psychophysics. Attention. Memory and the association of ideas. Illusions. Affection and feeling. Emotion and sentiment. Will. Sleep and dreams. Hypnotism. Insanity. Students who take this Course must have had some instruction in physics, at least one year of high school physics. Those who take Course 1 are advised to take at the same time or later Laboratory Course 2a or 2b. *T. Th., at 2.*

2a, 2b. Psychological Laboratory. The student is here given an opportunity of making such experiments as can not be successfully performed in the class room. *Once a week.* Hour to be arranged.

3. Pedagogical Psychology and Child Study. Application of the results of General and Genetic Psychology to pedagogical problems. As a rule, this Course must be preceded by 1. Only in exceptional cases permission will be given to take it at the same time with 1. *M. W., at 8:30.*

For Undergraduates and Graduates.

These courses are open only to students who have had an introductory course in General Psychology.

4a, 4b. Aesthetics (Psychological Theory of Art). *First Semester:* General Aesthetics on a Psychological Basis. *Second Semester:* Psychological Theory of Music. Either one of these semester Courses may be taken alone. *T. Th. S., at 3.*

5a. Advanced Psychology. Discussion of the general principles of scientific investigation. Application of these principles in the criticism of modern psychological theories and problems. *Three times a week.*

6b. Comparative Psychology. Mental development in the child and the race. Experimental methods of child study. Dawning intelligence during animal infancy. Experiments upon the mental processes of animals. Instinct and psychical heredity. Theories of mental evolution. *Three times a week.*

Primarily for Graduates.

7. Psychological Seminary and Advanced Laboratory Work. Critical reading of recent literature. Discussion of special problems and theories. Research work.

Physics

Professor LIPSCOMB; Assistant Professor STEWART; Dr. RAMSEY.

For Undergraduates.

1. General Physics. *Three times a week.* Lectures and Recitations, Section I, *W. F., at 9:30*; Section II, *T. S., at 3.* Laboratory, Section I, *M., 9:30-12*; Section II, *T., 8:30-12*; Section III, *Th., 9:30-12*; Section IV, *Th., 1:30-4.* Professor LIPSCOMB.

12a. A Short Course in Light. Lectures and laboratory. Open to

those who have completed Course 1 or its equivalent. *Once or twice a week.* Professor LIPSCOMB.

2. Experimental Physics. This Course is offered for the benefit of those who wish to acquire some knowledge of the simpler phenomena of Physics and who do not wish to pursue the subject further. Completion of this Course does not qualify one to take Course 4 or any subsequent Course. These lectures constitute a part of Course 3, but credit for Course 2 can not subsequently be applied to count on Course 3. *Twice a week.* Lectures. *T. Th., at 1:30.* Assistant Professor STEWART.

3. General Physics. A longer elementary Course. An elementary knowledge of Trigonometry is required. *Six times a week.* Experimental lectures, *T. Th., at 1:30.* Recitations, Section I, *T. Th., at 9:30;* Section II, *M. F., at 9:30;* Section III, *T. Th., at 10:30;* Section IV, *M. F., at 10:30.* Laboratory, Section I, *T. Th., 2:30-5;* Section II, *W. S., 9:30-12;* Section III, *M. F., 1:30-4;* Section IV, *W. S., 1:30-4.* Assistant Professor STEWART and Dr. RAMSEY.

4. Electrical Measurements. Lectures and laboratory work. *M. W. F., at 1:30.* Assistant Professor STEWART.

Course 1 is required of Agricultural students; Course 3 is required of all students in Engineering; Course 4 is required of students in Electrical Engineering.

For Undergraduates and Graduates.

5. Theory of Light. Calculus required. Based on Preston's Theory of Light. Lectures and recitations. *Three times a week.* Assistant Professor STEWART.

6. Theory of Heat. Calculus required. Lectures and recitations. *Three times a week.* Dr. RAMSEY.

7. Theory of Electricity and Magnetism. Calculus required. Differential Equations recommended. *Three times a week.* Assistant Professor STEWART.

8b. History of Physics. *Twice a week.* Professor LIPSCOMB.

9. Advanced work in General Physics. This Course, largely laboratory work, will be adapted to meet the needs and attainments of the individual student. The student may be assigned a definite problem, the literature of which must be studied and the experimental work performed with the care of original research. *Two to six times a week.* Assistant Professor STEWART and Dr. RAMSEY.

10. Seminary. Critical reading and discussion of current research work in Physics. A colloquium in which all members of the teaching staff of the department and students of sufficient attainments take part. *Once a week.*

Primarily for Graduates.

11. Research work. Hours to be arranged. Assistant Professor STEWART.

Physiology

Professor GREENE; Mr. MOORE; Mr. FREUDENBERGER.

For Undergraduates.

1a and 1b. Elementary Physiology. A lecture and demonstration Course open to all students. Lectures, *T. Th.*, at 8:30; Demonstration, Section I, *M.*, 1:30-4; Section II, *T.*, 1:30-4.

2. Experimental Physiology. This Course gives a detailed survey of the subject of Animal Physiology. The instruction in the lectures and recitations is based upon a general background of laboratory experience. Sets of apparatus are provided and selected experiments illustrating the facts and fundamental principles of the subject are performed by the individual student under the personal supervision of the instructors.

Zoology is required and Courses in Chemistry, Anatomy, Histology and in German are strongly recommended as preparation for this Course. Zoology 1 may be counted toward a major or minor in Physiology. Lectures, *M. W.*, at 8:30; Laboratory, Section I, *M. W.*, 9:30-12; Section II, *M. W.*, 1:30-4.

For Undergraduates and Graduates.

3a. Comparative Physiology. The principles of Physiology illustrated by the simpler forms of life. Lecture, *F.*, at 8:30; Laboratory, Section I, *F.*, 9:30-12; Section II, *F.*, 1:30-4.

4b. Pharmacology. This Course presents the physiological action of chemicals. The laboratory experiments are distributed to groups of students and each group is required to demonstrate to other members of the Course. Lecture, *F.*, at 8:30; Laboratory, *F.*, 9:30-12.

5b. Chemical Physiology. *Three times a week.* Lecture, *S.*, at 8:30. Laboratory hours to be arranged.

6. Advanced Physiology. Special Course open to students who have completed Course 2. Hours to be arranged.

Primarily for Graduates.

7. Investigation. Opportunity is here offered for research into questions of current physiological interest. Problems will be assigned according to the individual needs of the student. Hours to be arranged.

8. Physiological Seminary and Journal Club. *T.*, at 9:30.

Political Science and Public Law**Professor LOEB.***For Undergraduates.*

1. **Political Institutions.** An introduction to the study of political science and public law. A consideration of the nature, origin and development of political institutions followed by a comparative study of the structure and working of the important modern governments. Beginning with 1904-5, this Course will be required of all students who wish to elect other courses in Political Science or Public Law. Must be preceded by History 1. *T. Th. S., at 11:30.*

For Undergraduates and Graduates.

3b. **Elements of Jurisprudence.** An introduction to the study of law. The Course treats of the nature, sources and classification of law, and includes a consideration of the fundamental concepts of private law. The nature and use of legal authorities will be discussed. *W. F., at 3.*

4. **Comparative Constitutional Law.** A comparative study of the constitutional law of the principal states of Europe and America. Particular attention will be given to the field of individual liberty defined in the Constitution of the United States, and interpreted in the decisions of the Supreme Court. *T. Th. S., at 3.*

Primarily for Graduates.

5. **Comparative Administrative Law.** A study of the nature and functions of the administration and the control exercised over it in the United States, England, France, and Germany. Governmental structure will be studied in detail and local government will be considered with special reference to recent development. Given in 1902-3 and alternate years thereafter. *Three times a week.* Hours to be arranged.

6a. **Municipal Government.** A sketch of the history of municipalities followed by a study of the organization and functions of cities in Europe and the United States. Given in 1903-4 and alternate years thereafter. *Three times a week.* Hours to be arranged.

7b. **The Law of Taxation.** A study of the legal rules regulating taxation in the central and commonwealth governments of the United States. Should be preceded or accompanied by Economics 2. Given in 1903-4 and alternate years thereafter. *Three times a week.* Hours to be arranged.

8a. **The Government of Missouri.** A study of the Constitutional development of the state from the Louisiana Purchase to the present time, followed by a consideration of the organization and functions of the institutions of the central and local governments. Given in 1904-5. *Three times a week.* Hours to be arranged.

10. Seminary in Administration. A Course for the investigation of administrative organization and functions. In 1908-4 topics in Missouri administration will be studied from the sources. *May be elected for 2, 3, or 4 hours.*

Romance Languages

Professor WEEKS; Assistant Professor BASSETT; Miss WILLIAMS.

FRENCH.

For Undergraduates.

1. Elementary Course. French Reading and Composition. Frazer and Squalre's French Grammar. Section I, *T. Th. S., at 8:30*; Section II, *M. W. F., at 10:30*; Section III, *T. Th. S., at 9:30*. Miss WILLIAMS.

2. Modern Fiction and Plays. Composition, sight-reading. This Course is meant for the second year study of French. Much ground is covered, and considerable attention is paid to pronunciation. Several of the books read are: One of Erckmann-Chatrion's better stories; Lamartine's *Jeanne d'Arc*; Bornier's *La Fille de Roland*; Sandeau's *Mademoiselle de la Seigliere*; Augier's *Le Fils de Gibeau*; Theuriet's *L'Abbe Daniel*; Rostand's *La Princesse Lointaine*. *M. W. F., at 9:30*. Miss WILLIAMS.

4. A Course parallel to the second year's work under 2 is given, intended especially for training in conversation and composition. A number of standard novels and plays are read with reports and discussions in French. *M. W. F., at 10:30*. Professor WEEKS.

6. The French Drama. Reading, reports, and lectures. In this Course the development of the drama and theatre in France will be studied systematically. About fifteen representative plays, selected from the 17th, 18th, and 19th centuries, will be analyzed and discussed. The instructor will feel free to devote a portion of the year, if desirable, to some other branch of French literature. *M. W. F., at 9:30*. Assistant Professor BASSETT.

For Undergraduates and Graduates.

8. General View of French Literature. A great deal of ground is covered in this Course; much pronouncing is done, very little translation. The first semester is devoted to the 17th and 18th centuries, the second to the 19th. One or more plays of each of the great classical dramatists are read, together with masterpieces in other branches of literature. *T. Th. S., at 9:30*. Miss WILLIAMS.

9. French Literature in the Eighteenth Century. Lectures, readings, and reports. The first semester is occupied with the study of Voltaire and his contemporaries, chiefly the former—his life and character, his ideas and aims, and the nature and extent of his influence in France and abroad.

The second semester treats of the drama of the period, tracing its evolution from Racine to the death of Beaumarchais. *M. W. F., at 10:30.* Assistant Professor BASSETT.

10. The Seventeenth Century. An attempt is made in this Course to obtain a general view of the classic period of French Literature. Especial attention is paid to the development of French prose. There is considerable outside reading, with written reports from time to time. Selections from nearly all the great writers of the seventeenth century will be read. *T. Th. S., at 10:30.* Professor WEEKS.

Courses 9 and 10 are given in alternate years.

Primarily for Graduates.

11. The Sixteenth Century. Lectures, readings, and reports. The Course includes the period between the close of the literature of the Middle Ages and the first years of the seventeenth century, with especial attention to the intellectual forces set in motion by the Renaissance and the Reformation in France. The first semester will be given to a general survey of the period in question. The second semester will deal chiefly with Montaigne and Rabelais, making a careful study of selected portions of their works, and of the influence and significance of their thought. *T. Th. S., at 2.* Assistant Professor BASSETT.

12. Old French. Paris and Langlois' Chrestomathie, Le Covenant Vivien, and Allscans will be read, in whole or in part. The Course is conducted entirely in French. Although this Course is intended for Graduates, Seniors who have taken with high credit the preceding work and who are making a specialty of Romance Languages, are occasionally allowed to elect it, since it can be pursued advantageously for two successive years. *M. W. F., at 9:30.* Professor WEEKS.

ITALIAN.

For Undergraduates.

15. Beginning Course. Grammar, reading, composition. Open only to those who have taken Course 1 or its equivalent. The object of the Course is to obtain an easy reading knowledge of modern Italian, and to this end much ground is covered. Careful attention is paid to pronunciation, and as soon as possible students begin to read aloud without translation. The books used are: Grandgent's Grammar, Bowen's Reader, and specimens of modern prose in fiction and drama. *T. Th. S., at 11:30.* Miss WILLIAMS.

For Undergraduates and Graduates.

16. Advanced Course. The Sixteenth Century and Dante. Open to Seniors and Graduates who have had at least two years of French, and who possess a fluent reading knowledge of modern Italian. The purpose

of this Course is to take as comprehensive a view as is practicable of the classical literature of Italy. The work studied will be mostly verse, but outside prose reading will be expected. During the first semester Machiavelli's *Il Principe*, Tasso's *Gerusalemme Liberata*, and portions of Ariosto's *Orlando Furioso* will be read. The second semester will be devoted mainly to the study of Dante and the *Divina Commedia*. *T. Th. S., at 9:30.* Assistant Professor BASSETT.

SPANISH.

For Undergraduates.

18. Beginning Course. This Course is parallel to the corresponding one in Italian, and, as far as possible, the same methods are employed. Emphasis is laid on a careful knowledge of the leading facts of the language. The books used are Edgren's Grammar, and Fontaine's *Doce Cuentos Escogidos* (W. R. Jenkins), followed by specimens of modern prose in fiction and drama. *T. Th. S., at 11:30.* Assistant Professor BASSETT.

19. Advanced Course. The Nineteenth Century and Cervantes. Reading, composition, lectures. The Course deals chiefly with prose selected with the twofold aim of promoting acquaintance with some of the most notable works of Spanish fiction, and of furthering the better acquisition of the language as a means of expression. The first semester will be taken up with selected works of representative authors of the nineteenth century, as Caballero, Alarcon, Valera, Galdos; while the second semester will be devoted chiefly to Cervantes, Don Quixote, and *Novelas Ejemplares*. *T. Th. S., at 10:30.* Assistant Professor BASSETT.

PHONETICS.

Primarily for Graduates.

20a. General Introduction to Philology. An effort is made in this Course to study the phenomena of speech sounds from a physiological standpoint. The University has established a laboratory of Experimental Phonetics for the more accurate study of the living speech. *M. W. F., at 2.* Professor WEEKS.

21. Seminary. An opportunity is here given for advanced work in special subjects. *Twice a week.*

Sociology

Professor ELLWOOD.

For Undergraduates.

1. Elementary Sociology. Lectures on certain fundamental social problems, as e. g., the origin and evolution of the family, the growth of population, immigration, the race problem, the growth of cities, the

liquor problem, the housing problem, the nature of society. Text-book work, and study of special subjects for investigation. *M. W. F., at 9:30.*

2. The Social Teachings of Jesus. A series of lectures on the relation of Christianity to present social conditions and theories. Assigned reading. If credit is desired this Course must be preceded or accompanied by Course 1. *T., at 2.*

For Undergraduates and Graduates.

3a. Modern Philanthropy. A study of the nature and origin of the dependent and defective classes, the principles and methods of relief, the management of state institutions, etc. Reports by the class on special subjects for investigation. *T. Th. S., at 9:30.*

4b. Criminal Sociology. A study of the causes, nature, and treatment of crime; the principles of criminal anthropology, criminal jurisprudence, and penology. Lectures and selected text-books. *T. Th. S., at 9:30.*

5. Advanced Sociology. A critical study of sociological theory. Lectures, discussions, and reports on special investigations by the class. *T. Th. S., at 11:30.*

Primarily for Graduates.

6a. Ethnology. A study of the evolution and relations of the different races of mankind. *M. W. F., at 10:30.*

7b. Race Psychology. A study of the comparative psychology of races as shown in their customs, institutions, and social organization. *M. W. F., at 10:30.*

8a. Psychological Sociology. A critical study of the writings of Tarde, Le Bon, and Baldwin, with some attempt to make use of psychological principles in the interpretation of social phenomena. *M. W. F., at 2.*

9b. History of Social Philosophy. Lectures on the development of social thought from Aristotle to the present, especially since the time of Comte. Assigned reading. *M. W. F., at 2.*

10. Sociology of Religion. A study of religious phenomena from the sociological standpoint. Not given in 1903-4.

11. Seminary. Research work. *Two, three, or four hours.*

No course in Sociology is open to Freshmen.

Zoology

Professor LEFEVRE; Dr. CURTIS; Miss MCGILL.

For Undergraduates.

1. General Zoology. A Course intended to give a general survey of the field of zoological science, and to familiarize the student with a typ-

ical series of animal forms. In the laboratory the student studies, by means of the microscope and dissection, selected animals, from the simpler forms, such as amoeba and paramoecium, to the complex, such as the earthworm, the mussel, the crayfish, and the frog. The main object in view is to train the student in the exercise of his powers of observation, and at the same time to lay the foundation of the general principles of Zoology, either as part of a liberal education, or as preparation for professional study. Lecture and Recitation, *W. F.*, at 11:30; Laboratory, Section I, *M. W.*, Section II, *T. Th.* at 1:30. Dr. CURTIS and Miss MCGILL.

2. Comparative Anatomy of Vertebrates. A comparative study of the structure of a series of Vertebrates. Lecture, *S.*, at 11:30; Laboratory, *T. Th.*, at 1:30. Professor LEFEVRE.

3. Comparative Anatomy of Invertebrates. A comparative study of the structure of a series of Invertebrates. Lectures and Laboratory, *T. Th. S.*, 10:30-12:30. Dr. CURTIS.

4b. Embryology of Vertebrates. The development of the chick is studied in the laboratory, and the observations there made are used as a basis of comparison with the development of higher forms. Lecture, *T.*, at 10:30; Laboratory, *T.*, 8:30-10:30; *Th.*, 8:30-11:30. Professor LEFEVRE and Miss MCGILL.

For Undergraduates and Graduates.

5a. Embryology of Invertebrates. A study of the development of representative forms from the principal phyla of the Invertebrates. Lecture, *M.*, at 11:30; Laboratory, *W. F.*, at 8:30. Dr. CURTIS.

6. Cytology. A study of the cell, with special reference to problems of development and inheritance. Cytological technique. Lecture, *M.*, at 9:30; Laboratory, *W. F.*, at 9:30. Professor LEFEVRE.

7a. Principles of Zoology. A Course of lectures designed to cover the main principles underlying zoological science. Collateral reading in the writings of Darwin, Huxley, Spencer, Romanes, Galton, Weismann, Hertwig, Brooks, and others. *T. Th.*, at 11:30. Professor LEFEVRE.

Primarily for Graduates.

8. Research. Special investigation of unsolved problems of Zoology. In which the student is trained in the exercise of original observation and thought. A reading knowledge of French and German is required. Hours will be arranged in accordance with the requirements of individual students.

9. Seminary. Meetings at which special subjects of zoological investigation are reported and discussed by instructors and students. Each student is required to give at least six lectures during the year, and experience is thus gained in presenting, in the form of lectures, the results

of reading and research. A reading knowledge of French and German is required. *Twice a week.* Hours to be arranged.

Physical Training and Athletics

Professor HETHERINGTON; Miss MANN; Mr. TUTTLE; Miss STONER.

The primary aim of the work in physical training is to foster hygienic habits among the students and supervise their exercises (1) by giving an opportunity to participate in those gymnastic and athletic activities that lead to a higher functional development, (2) by stimulating an interest in their physical efficiency and in the pleasures of gymnastic and athletic activities, and (3) by giving a general working knowledge of their own physical needs and of the principles of physical training for their own guidance.

All the work of the Department is based on a thorough physical examination given each student at the beginning of the year. The women are examined by the Instructor in charge of the Women's Gymnasium, assisted by a lady physician appointed for the purpose; the men by the Director, assisted by physicians from the Medical Department. All students, whether taking work in the department or not, are entitled to a physical examination and advice as to their physical condition.

After this examination students are assigned work according to their physical needs, fitness and taste. Delicate students, both men and women, and those suffering from functional disorders, or curable deformities are given individual attention. No effort is spared to insure benefit. Students organically sound are assigned work in a carefully graded and progressive system of educational gymnastics. The men are graded in divisions, sections, and squads for advanced work, but are not allowed to enter advanced heavy gymnastics or special events in gymnastics or athletics until they have attained the required grade tests. All candidates for athletic teams, class as well as University, not taking regular work, are required to register with the Director and pass the grade tests.

For their value in student life and to those men physically fit to participate in them, competitive athletics and intercollegiate contests are encouraged. Intercollegiate contests are considered a part of student body life and a student enterprise but in order that such contests may be in accordance with good training principles and the broader educational aims of the institution, they are placed by the Board of Curators of the University under department supervision and control. All transient coaches are under the immediate supervision of the Director and must instruct through a coaching board composed of faculty, alumni, and students.

There is no gymnasium fee, but regulation suits are required for both

NOTES

men and women. Prospective students will find it less expensive and more satisfactory to secure their suits in Columbia according to directions given at the opening of the year.

1. **Practical Training.** All the various classes of exercises offered by the department are organized under the head of this Course. The work comprises corrective and light gymnastics, besides gymnastic games and other recreative exercises. For men, instruction in fencing, boxing, and wrestling, and training in outdoor games and sports are given. *Three times a week.* One hour's credit a semester for four semesters. Professor HETHERINGTON, Miss MANN, Mr. TUTTLE, Miss STONE, Mr. McLEAN, and Mr. WHEELER.

2a. **Principles of Physical Training.** A short Course of general lectures to be taken with Course 1 during the first year's work. Hours to be arranged. Professor HETHERINGTON and Miss MANN.

3. **Technique of Athletics.** A Course of lectures by the head of the Coaching Board under the direction of Professor Hetherington on the theory, technique, and points of skill in different athletic sports. All candidates for teams are expected to attend the lectures on the technique of their events. Hours to be arranged. No credit allowed.

III. DEPARTMENT OF EDUCATION

FACULTY.

RICHARD HENRY JESSE, LL. D.,
President.

JOSEPH MARTIN WHITE, A. M.,
Lecturer on Pedagogy.

FRANK THILLY, A. B., Ph. D.,
Professor of Philosophy.

MAX MEYER, Ph. D.,
Professor of Experimental Psychology.

JOHN SITES ANKENNEY, JR.,
Instructor in Freehand Drawing.

NON-RESIDENT LECTURERS.

J. M. GREENWOOD, LL. D., Superintendent of Public Schools, Kansas
City,
Lecturer on Pedagogy.

F. LOUIS SOLDAN, Ph. D., Superintendent of Schools, St. Louis,
Lecturer on Pedagogy.

Most of the members of the Academic Faculty, pp. 63-66, and the instructors in the Industrial work required for a Life Certificate are members of this Faculty.

Requirements for Admission:

The requirements for admission to this Department are the same as to the Academic Department. See pages 32-38.

Life Certificate:

The Courses in this Department are intended to prepare students to teach in the secondary schools of the State. They lead to the Life Certificate, which entitles the holder to teach for life in any public school in Missouri.

To obtain this Certificate the student must fulfill the following conditions:

1. He shall meet the requirements for the degree of Bachelor of Arts.
2. He shall elect and complete in a satisfactory manner not less than twelve (12) hours of Pedagogy, and not less than six (6) of Psychology.
3. In addition to what is required for the degree of Bachelor of Arts, he shall complete in a satisfactory manner at least six hours in Agriculture, or Horticulture, or Household Economics, or Shopwork, or Drawing, or Bookkeeping, or Shorthand and Typewriting.

Students that apply for the Life Certificate may take in any semester fifteen (15) hours of Academic work and three (3) hours of industrial work, but in no case shall the number of hours exceed eighteen (18).

None of the industrial work mentioned above may be counted toward an Academic degree, but six hours of it are required for the Life Certificate and most may be counted toward the degree of B. S. in Agriculture.

Courses in Industrial Education:

For the work offered in Agriculture and Horticulture and for the Courses for teachers in Shopwork, Manual Training, Mechanical Drawing, Household Economics, Bookkeeping, Shorthand and Typewriting, see announcement in this Catalogue of the College of Agriculture and Mechanic Arts. For Freehand Drawing, see page 104.

Experimental Psychology and Child Study:

For Courses, see pages 90-91.

Courses for Teachers in the Summer Session:

In the summer of 1903, the University will offer Courses in Agriculture, Biology, Chemistry, English, Freehand Drawing, French, German, Greek, History, Horticulture, Latin, Library Training, Manual Training, Mathematics, Pedagogy, Physics, and Psychology. They are especially for the advantage of public school teachers of the state, though open in some subjects to regular students in the University. The first term of the summer work begins June 1. Circulars giving full details may be had upon application to J. C. JONES, Director, Columbia, Missouri.

Theory and Practice of Teaching

Professor WHITE.

1a. History of Education. Lectures. Essays, reports and discussions. *M. W. F., at 10:30.*

2b. Educational Classics. Readings, reports, and discussions. *M. W. F., at 10:30.*

3. Theory of Education. Lectures, recitations, and occasional essays. *T. Th. S., at 3.*

4a. School Supervision. Lectures and recitations. *M. W. F.* Hours to be arranged.

5b. Pedagogical Seminary. Discussion of current educational questions. *Twice a week.* Hours to be arranged.

All courses may be counted toward the degree of Bachelor of Arts.

Freehand Drawing

[For the present, Courses in Freehand Drawing are entered under the Department of Education.]

MR. ANKENBY.

1. Normal. Drawing from the standpoint of the child. This Course counts as six hours of industrial work toward the Life Certificate. *M. W. F., at 8:30.*

2. Representation. An introductory Course giving a general survey of delineation. The principles and theories are presented in lectures with collateral reading. Experimental practice in drawing with pencil, pen and ink, wash, and in painting with water colors. *T. Th. S., at 8:30.*

During the second semester the experimental practice in Course 2 is differentiated somewhat to suit the needs of the individual student. Those taking this Course as a direct aid to scientific work, to the history of art or other University courses, should so inform the instructor.

3. Design. The theory of design; design as fundamental to the fine arts (architecture, painting, sculpture) and crafts; the principles and bases; evolution in design. Lectures, reading, study of examples, original exercises. This Course is recommended in addition to Course 2, as an introduction to advanced courses. *T. Th. S., at 9:30.*

5. Construction. Consideration of past and present usage in the artistic construction of the human figure. Lectures, study of examples and reading. Drawing and modeling from casts and life. Lecture, *M., at 2;* Laboratory, *W. F., 1:30-4.*

7. Painting. Style, theory and method of various schools and movements. Lectures, study of examples, and reading. Experimental practice in painting from still life, landscape, and life. Lecture, *M., at 3;* Laboratory, *W. F., 1:30-4.*

IV. DEPARTMENT OF LAW

FAULTY.

RICHARD HENRY JESSE, LL. D.,
President.

*ALEXANDER MARTIN, LL. D.,
Professor of Law, and Dean of the Faculty.

†JOHN DAVISON LAWSON, LL. D.,
Professor of Law, and Dean of the Faculty.

JAMES AULL YANTIS, LL. B.,
Professor of Law.

‡———,
Professor of Law.

MILTON ROBARDS CONLEY, A. M., LL. M.,
Assistant in Law.

HARVEY DENNIE MURRY, LL. M.,
Assistant in Law.

ANDREW WALKER McALESTER, M. D., LL. D.,
Lecturer on Medical Jurisprudence.

NON-RESIDENT LECTURERS.

HON. ELMER B. ADAMS, LL. D., Judge of U. S. District Court for the
Eastern District of Missouri,
Lecturer on the Law of Wills and Administration.

HON. JAMES B. GANTT, LL. D., Justice of the Supreme Court of Mis-
souri,
Lecturer on Corporations.

PAUL BAKEWELL, LL. B., St. Louis, Mo.,
Lecturer on Patents and Trade Marks.

HON. W. M. WILLIAMS, Ex-Justice of the Supreme Court of Missouri,
Lecturer on Negotiable Instruments.

*Died, December 15, 1902.

†Appointed Dean of the Faculty, March 31, 1903.

‡To be appointed before September 1, 1903.

Requirements for Admission:

For information in regard to requirements for admission, see pages 32-88.

Tuition Charges and Fees:

For information concerning tuition charges and fees, see pages 46-47.

Admission to First Year Class:

Students entering the First Year Class at the beginning of the term are not required to pass any examination in Law. Those entering later may pass an examination in the subjects accomplished by the First Year Class at that date, or they may be conditioned in those subjects at the discretion of the Law Faculty.

A member of the First Year Class will not be admitted to instruction in the Junior or Senior Class.

Admission to Junior Class:

Students entering the Junior Class must do so at the beginning of the term, and must pass a satisfactory examination in the subjects of the First Year Class. In exceptional cases the applicant may be admitted later, or may be conditioned in one subject of two or three hours in each semester, which condition must be made up before admission to the Senior Class. If the applicant achieves inferior grades generally on the subjects upon which he has been examined, his case will not be an exceptional one within the above rule. Certificates from law schools, approved by the Law Faculty, showing that the applicant has accomplished with passing grades the first year's work in said schools, will be accepted in lieu of examination in Law for the Junior Class. Certificates of admission to the bar are not accepted in lieu of examination.

Admission to Senior Class:

Students entering the Senior Class must do so at the beginning of the year; they must have been resident students for one year in the Junior Class, and have accomplished all the work of the First Year and Junior Classes. Applicants from law schools, which are members of the Association of American Law Schools, are entitled to examination for admission to the Senior Class, provided they have accomplished with passing grades the work of the first and second years of said schools, and have been resident students therein during the whole of the second year, and apply here at the beginning of the Senior year. Admission to the Senior Class subject to conditions is not allowed.

Admission as Special Students:

Applicants who are twenty-one years of age may be admitted without entrance examinations as special students, not candidates for a degree; and they may elect such work as they desire in any of the three classes. Applicants under twenty-one are given the same privilege, provided they satisfy the requirements for entrance to the Department of Law.

Admission as Graduate Students:

Students who have taken the degree of LL. B., in this Department, or in some other law school whose course is equivalent thereto, may be admitted to the Graduate Class.

COURSE OF INSTRUCTION.

The course of instruction extends through three years. The object of the Department is to afford a thorough training in the fundamental principles of the Law, both substantive and remedial. Instruction is given by the study of text-books and leading cases, by lectures and exposition and by colloquy and discussion. In addition to the instruction given by the resident members of the Faculty, lectures are given each year by eminent specialists in the profession, at the bar and on the bench.

FIRST YEAR.*First Semester.*

Contracts. *Five times a week.* Professor LAWSON.

Criminal Law. *Three times a week.* _____.

Criminal Procedure. *Twice a week.* _____.

Second Semester.

Bailments and Carriers. *Three times a week.* Professor LAWSON.

Personal Property. *Twice a week.* Professor LAWSON.

Torts. *Three times a week.* Professor YANTIS.

Probate. *Once a week.* _____.

Partnership. *Once a week.* _____.

JUNIOR YEAR.*First Semester.*

Real Property. *Three times a week.* Professor YANTIS.

Equity. *Three times a week.* Professor YANTIS.

Sales. *Twice a week.* Professor LAWSON.

Private Corporations. *Twice a week.* _____.

Second Semester.

Real Property. *Three times a week.* Professor YANTIS.

Damages. *Once a week.* Professor YANTIS.

Insurance. *Once a week.* Professor LAWSON.

Common Law Procedure. *Three times a week.* _____.

Municipal Corporations. *Twice a week.* _____.

SENIOR YEAR.

First Semester.

Quasi Contracts. *Twice a week.* Professor LAWSON.

Suretyship. *Once a week.* Professor LAWSON.

Evidence. *Three times a week.* Professor YANTIS.

Wills. *Once a week.* Professor YANTIS.

Code Procedure. *Three times a week.* _____.

Second Semester.

International Law. *Twice a week.* Professor LAWSON.

Bills and Notes. *Twice a week.* Professor LAWSON.

Constitutional Law and Statutory Construction. *Twice a week.* Professor YANTIS.

Homesteads. *Once a week.* Professor YANTIS.

Extraordinary Remedies. *Twice a week.* _____.

Bankruptcy. *Once a week.* _____.

Practice Court:

It is the purpose of the Department to establish, in the near future, it is hoped by the fall of 1903, a Practice Court. This Court will have its regular terms, corresponding with the terms of the various courts of the state, inferior and superior. Each student in the Junior and Senior years will be required to prepare the necessary papers in the cases assigned to him, present and argue them, and to present and argue every motion or other objection that would be urged in a case on trial in court. This will be done, of course, under the direction and with the advice of the Professor of Pleading and Practice. It is not intended to teach substantive law in this court, except as a mere incident. It is intended, however, to illustrate every point of practice. The purpose is to make our students so familiar with every point of practice that when they are admitted to the bar they will not be embarrassed in the handling of their cases in court.

Degrees:

The degree of Bachelor of Laws (LL. B.) is conferred upon all students who have satisfactorily completed the prescribed work of the course.

This course requires three years for its completion, and no student is allowed to graduate except after three years of actual residence unless in case of admission to advanced standing.

Members of the Graduate Class who have successfully passed the prescribed examinations receive the degree of Master of Laws (LL. M.).

The degree of Bachelor of Laws from this University entitles the holder to admission to the bar of the state without further examination.

Certificate of Attendance:

Each student who has been in regular attendance upon the Department, whether entitled to a degree or not, may, on application to the Faculty, receive an official certificate of attendance, which states the time of his attendance and, if desired, the degree of his attainments.

Honors and Prizes:

The degree of Bachelor of Laws, *cum laude*, is conferred for special excellence in law work. Candidates for this honor must, before May 1st of the Senior year, present an essay on some subject in Law previously assigned by the Faculty. The writer of the best of these essays is accorded the Edward Thompson Company prize, a set of the latest edition of the American and English Encyclopedia of Law, and his name, as well as that of the writer of the second best, are placed on the Commencement program.

A scholarship of \$50, provided in the endowment fund of the Hon. James S. Rollins, is awarded each year, at Commencement, to the member of the Junior Class, who, by superior scholarship and moral conduct, has shown himself entitled thereto.

Building:

The Law Department has its own building, containing lecture rooms, club rooms, quiz rooms, library rooms, and offices for the members of the Faculty.

Libraries:

The library of the Law Department contains over 10,000 volumes, to which large additions are made yearly. The fee of \$10 is devoted exclusively to the library, and the sum of \$5,000 appropriated by the Forty-second General Assembly will be expended for law books during the next twelve months. In its collections of the reports of all the American State Courts, the Federal Courts and the Courts of Great Britain, as well as in its extensive list of text-books, treatises, statutes, and legal periodicals, the law library will be found adequate to the needs of under-

graduate students, and, in connection with the University Library of 55,000 volumes, affords extensive opportunity for research by advanced students. Students have personal access to all books in the library, and are permitted to take to their rooms such text-books and periodicals as are not strictly of a reference nature.

Academic Studies:

Students in the Law Department may, without additional charge, and with the consent of the Dean, take instruction in other departments of the University, and may thus pursue, provided it does not interfere with their legal studies, such studies as Latin, French, Logic, English, Military Science, Political Economy, Political Science, Sociology, History, Stenography, Elocution, etc.

Academic students may elect for credit toward the degree of Bachelor of Arts not more than nine hours of the First Year's work in the Law Department.

University Societies:

Students of the Law Department are eligible to membership in the literary societies of the University; to the "Bliss Lyceum," to which members of the Law Department alone are admitted, and to a number of Debating Clubs (see page 55).

The special circular of the Law Department, containing much additional information, will be sent on application to the Registrar of the University, or to the Dean of the Law Department.

V. DEPARTMENT OF MEDICINE

FAULTY.

RICHARD HENRY JESSE, LL. D.,
President.

ANDREW WALKER McALESTER, A. M., M. D., LL. D.,
Professor of Surgery, and Dean of the Faculty.

WOODSON MOSS, M. D., LL. D.,
Professor of the Practice of Medicine and Therapeutics.

MILLARD LEWIS LIPSCOMB, A. M.,
Professor of Physics.

JOHN WALDO CONNAWAY, D. V. S., M. D.,
Professor of Comparative Medicine.

WILLIAM GEORGE BROWN, B. S., Ph. D.,
Professor of Chemistry.

GEORGE LEFEVRE, A. B., Ph. D.,
Professor of Zoology.

CHARLES WILSON GREENE, A. M., Ph. D.,
Professor of Physiology and Pharmacology.

CLARENCE MARTIN JACKSON, M. S., M. D.,
Professor of Anatomy and Histology.

WALTER McNAB MILLER, B. S., M. D.,
Professor of Pathology and Bacteriology.

MAX W. MYER, A. B., M. D.,
Professor of Gynecology and Obstetrics.

GUY L. NOYES, M. D.,
Professor of Diseases of the Eye and Ear.

SIDNEY CALVERT, B. Sc., A. M.,
Assistant Professor of Chemistry.

RICHARD B. MOORE, B. S.,
Instructor in Chemistry.

ARTHUR ERMON HACKETT,
Lecturer on Climatology.

PETER POTTER, B. S.,
Assistant in Anatomy.

ELEXIOUS THOMPSON BELL, B. S.,
Assistant in Anatomy.

HENRY CLAY FREUDENBERGER, B. L.,
Assistant in Physiology.

THORNTON EASLEY MOORE,
Assistant in Physiology.

JAMES ANDERSON CROCKETT,
Student Assistant in Pathology and Bacteriology.

NON-RESIDENT LECTURERS.

FRANK L. HENDERSON, M. D.,
Lecturer on Ophthalmology.

G. R. HIGHSMITH, B. S., M. D.,
Lecturer on Railroad Surgery.

A. B. MILLER, A. B., M. D.,
Lecturer on Gynaecology.

J. E. TEFFT, M. D.,
Lecturer on Genito-Urinary Surgery.

W. A. TICHENOR, M. D.,
Lecturer on Gynaecology.

W. F. MORROW, M. D.,
Lecturer on Abdominal Surgery.

J. C. WOODSON, M. D.,
Lecturer on Nervous Diseases.

J. F. ROBINSON, M. D.,
Lecturer on Nervous Diseases.

J. W. SMITH, M. D.,
Lecturer on Nervous Diseases.

S. B. ELKINS, M. D.,
Lecturer on Medical Criminology.

The Medical Department of the University was organized at Columbia in 1872, and instruction was begun in February, 1873. The Department is open alike to men and to women.

Requirements for Admission:

For information in regard to requirements for admission, see pages 32-38.

Admission to Advanced Standing:

Every applicant for advanced standing will be required to present credentials from an accredited college, showing satisfactory completion of courses equivalent to those already followed by the class to which he seeks admission. Moreover, the usual entrance requirements must be satisfied, and evidence of good moral character must be offered.

Applications for advanced standing should be addressed to the Dean of the Medical Department.

Special Students:

Students may be admitted to the Medical Department without passing the regular examination required for entrance, under the following conditions: (1) They must be at least 21 years of age; (2) they must show good reason for not taking a regular course; (3) they must pass such examinations or other tests as shall demonstrate fitness to pursue profitably the subjects selected by them; (4) they will not be allowed to take work in more than two subjects, with such kindred work as the Head Professors may suggest. Such students are expected to do specially good work in the subjects which they choose. If at any period of the session their work becomes unsatisfactory in one or both of the two major subjects, their connection with the University shall be severed by the Dean of the Department.

COMBINED MEDICAL AND ACADEMIC COURSE.

It is the policy of the Medical Department to encourage in every way possible the gaining of a liberal education as a sound preparation for the professional study of Medicine.

Students of Medicine are strongly urged to take a scientific course in the Academic Department in conjunction with their Medical Work. The student in the Medical Department may, by a proper choice of electives in the Academic Department, do his required work in Medicine and at the same time meet the requirements for the degree of Bachelor of Arts (see pages 67-68). This, it is true, prolongs the student's course to at least six years, but the greater power and broader training acquired makes of him a better and more successful physician.

In order to preserve the proper sequence of required courses and an equitable balance between these and general culture courses, it is recommended that subjects be elected in the order suggested by the following tabulated statement:

SIX YEAR COMBINED COURSE.

<i>First Year.</i>	<i>First Semester.</i>	<i>Second Semester.</i>
English	3	3
German	3	3
French	3	3
Zoology 1	3	3
Elective	3	3
<i>Second Year.</i>		
German	3	3
Physics	3	3
Inorganic Chemistry	3	3
Zoology 2	3	3
Elective	3	3
<i>Third Year.</i>		
Organic Chemistry	3	3
Physical Chemistry	3	0
Embryology	0	3
Histology	3	3
Descriptive Anatomy	3	3
Practical Anatomy	3	3
Osteology	3	0
Neurology	0	3
<i>Fourth Year.</i>		
Topographic Anatomy	3	0
Physiology	6	6
Physiological Chemistry	3	0
Pharmacology	0	3
Pathology	3	0
Bacteriology	3	0
<i>Fifth Year.</i>		
Therapeutics	2	2
Practice of Medicine	4	4
Medical Diagnosis	3	3
Special Pathology	3	0
Hygiene	3	0
Principles of Surgery	3	3
Obstetrics	0	3
Elective	0	3
<i>Sixth Year.</i>		
Clinical Medicine	3	3
Clinical Surgery	3	3

	<i>First Semester.</i>	<i>Second Semester.</i>
Obstetrics	3	0
Gynaecology	3	3
Eye and Ear	3	3
Medical Jurisprudence	0	1
Climatology	0	1
Elective	3	3

Students taking the Combined Course are registered in both the Medical and Academic Departments, and during the first four years their work includes courses which are identical with those of the first two years of the four-year Medical Course.

No credit for work done outside of an accredited school is allowed.

Candidates for both the Academic and Medical degrees must fulfill the entrance requirements of both Departments.

With the consent of the Dean, Medical students may take accessory work offered in the Academic Department and in the School of Agriculture; but the total number of hours shall not exceed 18 a week.

THE MEDICAL LABORATORY BUILDING.

A handsome and commodious new building devoted entirely to medical laboratories has just been completed. This building brings together the lecture rooms, laboratories and offices for Anatomy, Histology, Physiology, Pathology, Bacteriology, Hygiene, Pharmacology, and Physiological Chemistry. Animal rooms, aquaria rooms, mechanic's shop, and special research rooms are provided for. A cold storage plant is devoted to the exclusive needs of anatomical and pathological preparations. Recent appropriations will be devoted exclusively to the equipment of the laboratories of this building.

PARKER MEMORIAL HOSPITAL.

Clinical Staff.

A. W. McAlester, M. D.	Superintendent and Attending Surgeon
Woodson Moss, M. D.	Attending Physician
Walter McN. Miller, M. D.	Pathologist and Bacteriologist
Guy L. Noyes, M. D.	Attending Ophthalmologist and Otologist
Max W. Myer, M. D.	Attending Gynaecologist and Obstetrician
Clarence A. Good, M. D.	Resident Physician
Sophie Evans	Superintendent of Training School for Nurses

By the gift of Wm. L. Parker, the Medical Department is supplied with an excellent Hospital, which is now completed and in operation. In the words of the donor, it is "for the benefit of the Medical Department." This building is a handsome, modern structure, conveniently located on

high ground at the west side of the Campus. The building is heated by steam, lighted by gas and electricity, and well ventilated.

The Hospital is a State Hospital, owned and controlled by the University, and is open to the sick of Missouri under the following conditions:

The Hospital is designed for the treatment of accidents, of acute and subacute diseases, and of chronic curable diseases. Cases of incurable or contagious diseases or of acute alcoholism will not be admitted.

The primary purpose of the Hospital is to furnish clinical instruction to the students of the Medical Department, in order that by the observation and study of disease they may be fitted to practice medicine intelligently. The patients serve to illustrate the nature of disease, its course, and its treatment. In the use of patients in this way nothing is done to offend their sensibilities, and their interest and welfare are constantly and carefully regarded by those in charge of the Hospital.

Patients suffering from severe accidents or serious illness may be brought to the Hospital at any hour of the day or night. Other patients are admitted between the hours of 10 a. m. and 5 p. m. They must apply in person at the Hospital, to be examined for admission.

Patients living outside of Columbia must make application in writing through some reputable physician and send a statement of the nature of their disease. All patients must pay the charges as provided for in the rules. All patients entering the Hospital shall come under the control of the Hospital Staff. The family physician will be admitted to the Hospital to consult with the Hospital Staff.

The Hospital has a clinical laboratory well equipped with chemicals and apparatus for the clinical examination of blood, sputum, feces, urine, stomach contents, etc. The Hospital is also in close affiliation with the scientific laboratories of the Medical Department, where every facility is given in making all examinations for diagnostic purposes.

Rates—The general wards, \$7.00 a week; private wards, \$15.00 a week.

These charges include board and ordinary nursing and medicines. Operative cases are subject to extra charge for surgical dressings, etc.

Operative cases receive special nursing for 24 hours after the operation, or longer if deemed necessary. Further special nursing if desired by the patient will be charged for at the rate of \$2 a day. No fees for operations or for medical and surgical attendance are charged clinical patients, whether in general or private wards.

Patients requiring operations must deposit beforehand sufficient money to cover their expenses for the time they will probably have to

remain in the Hospital. The unused balance of the deposit will be refunded when the patient is discharged.

Patients requiring medical attention must deposit in advance money for one week's board at least and more if it be required. Board is payable in all cases weekly in advance.

Private Cases.—A limited number of private cases are received. The charges are \$15 a week and upwards for ordinary medicines, nursing, and board. Private cases are required to pay a fee to the medical or surgical attendant.

THE BUSCH CLINICAL AMPHITHEATRE.

A Clinical Amphitheatre adjoining the Hospital has been provided by the gift of Adolphus Busch, of St. Louis. It has a seating capacity of about one hundred, is supplied with accessory rooms for sterilizing, anaesthetizing, etc., and has a number of special rooms for the work in dispensary clinics.

The interior of the Amphitheater has recently been equipped with the accessories of a modern clinic.

In the various clinics, so far as is compatible with the safety of human life, the student himself does the work. He makes his own examinations and observations, studies carefully the progress of the disease, and finally submits a detailed written report of the case to the remainder of the class for discussion. Much stress is laid upon bedside clinics.

SCHOLARSHIP.

The Rollins Scholarship in the Department of Medicine is a prize of fifty dollars which is awarded to that member of the Junior (Third Year) class who has made the best record during the course.

COURSE OF INSTRUCTION.

	<i>First Year.</i>	<i>First Semester.</i>	<i>Second Semester.</i>
Anatomy		6	6
Osteology		3	0
Histology ..		3	3
Chemistry		3	6
Physics		3	3
<i>Second Year.</i>			
Anatomy		3	3
Physiology		6	4
Pharmacology		0	2
Chemistry		3	0
Bacteriology		6	0
Pathology		0	6
Embryology		0	3

<i>Third Year.</i>	<i>First Semester.</i>	<i>Second Semester.</i>
Therapeutics	2	2
Practice of Medicine	4	4
Medical Diagnosis	3	3
Special Pathology	3	0
Hygiene	3	0
Principles of Surgery	3	3
Obstetrics	0	3
Elective	0	3
<i>Fourth Year.</i>		
Clinical Medicine	3	3
Clinical Surgery	3	3
Obstetrics	3	0
Diseases of Eye and Ear	3	3
Gynaecology	3	3
Medical Jurisprudence	0	1
Climatology	0	1
Elective	3	3

COURSES IN DETAIL.

[Courses designated by a number with the letter a attached, thus: 4a, 6a, are given the first semester only. Those designated by a number with the letter b attached, thus: 4b, 6b, are given the second semester only. Those designated merely by a number are continuous courses and are given both semesters.]

Anatomy and Histology

Professor JACKSON; Mr. POTTER; Mr. BELL.

1a. Osteology. A complete unmounted skeleton is issued to every two students for their use during this Course. A deposit of \$10 is required which is refunded less a fee of \$2 when the skeleton is returned uninjured. *T. Th. S., at 8:30. First Year.*

2. Practical Anatomy. Lecture, Section I, *M.*, Section II, *F.*, at 10:30; Laboratory, Section I, *M. W.*, Section II, *T. F.*, 1:30-4. *First Year.*

3. Descriptive Anatomy. A recitation and demonstration Course in systematic human anatomy. Text: Gray's Anatomy, 15th Edition, *M. W. F.*, at 8:30. *First Year.*

4. Normal Histology. Each student prepares, stains and mounts permanently at least 75 specimens of normal tissue. Lecture, *W.*, at 10:30; Laboratory, Section I, *T. F.*, Section II, *M. W.*, 1:30-4. *First Year.*

7a. Neurology and Dissection. Including the central nervous system, sense organs, and the completion of human dissection. *M. W. F.*, 1:30-4. *Second Year.*

8b. Topographic Anatomy. A study of the topography of the various organs by means of serial sections through the entire body. Lectures and laboratory. *M. W. F.*, 1:30-4. Second Year.

9. Investigation. Elective.

For details concerning Course 9, see page 69.

Chemistry

Professor BROWN; Assistant Professor CALVERT; Mr. MOORE; Dr. SCHLUNDT; Mr. LIEPSNER; Mr. LOCKE.

13. General Chemistry. This Course consists of lectures, recitations, and laboratory work, lasting three semesters, including general descriptive inorganic and organic Chemistry, theoretical and physical Chemistry, toxicological Chemistry, qualitative chemical analysis, physiological Chemistry and urinary analysis, with special reference to the needs of the student in medicine, pharmacy, physiology, pathology, hygiene, and toxicology so far as the time will permit. During the whole Course the theoretical conceptions of Chemistry are not neglected, and an attempt is made to present the science of Chemistry as a consistent unity. Recitations are regularly held, covering the text and lectures, and from time to time written work is or may be required.

The laboratory work is carried along with the lectures and recitations. For this work each student is provided with desk room and apparatus of his own. Practical exercises are required in the examination of water, air, general qualitative chemical analysis, the detection of poisons (inorganic and organic), the preparation and testing of inorganic compounds, the preparation of some typical hydrocarbons, alcohols, acids, fats, the estimation of urea and the sugars, the reactions of uric acid, of the principal alkaloids, and other important organic compounds, and incidentally the detection of adulterations. *Three times a week, first semester. T. Th. S., 9:30-12. Five times a week, second semester. T. Th. S., 8:30-12; Th. S., 1:30-4. First Year. Three times a week, first semester. T. Th. S., 1:30-4. Second Year.*

Texts: Witthaus' The Medical Student's Manual of Chemistry; or Bartley's Text-book of Medical and Pharmaceutical Chemistry; or Attfield's Chemistry: General, Medical, and Pharmaceutical, including the Chemistry of the United States Pharmacopoeia; Noyes' Qualitative Chemical Analysis, and special notes of the instructors.

Comparative Medicine

Professor CONNAWAY.

1a. Comparative Medicine. Lectures, laboratories and clinics. This

Course is offered to afford students of human Medicine an opportunity to broaden their knowledge of clinical symptoms and pathological processes. Special attention is given to those diseases of lower animals that are communicable to man. Certain of the non-communicable diseases of the lower animals are considered, where the comparative study is deemed especially important for the better understanding of the corresponding human maladies. The students are made familiar by practical demonstrations with clinical as well as finer methods of diagnosis. They are also instructed in the measures that are employed for eradicating or controlling these sources of infection to man. The library, laboratory, and clinics of the Veterinary department are available as aids to this instruction. *Three times a week. Third Year.*

2. An opportunity for advanced and research work will be afforded students who have proper preparation. Elective.

Medicine and Therapeutics

Professor Moss.

1. Practice of Medicine. Lectures, recitations, and clinics
Text-books: Anders and Osler. *Three times a week. Third Year.*

2. Clinical Medicine. Students in this year are required to make written reports of cases in their charge, and to write articles upon subjects assigned. These reports and articles are discussed by the class and the Professor. Monographs and essays upon important subjects, by eminent authors, are reviewed before this class, and the students are required to make digests. *Three times a week. Fourth Year.*

3b. Venereal Diseases in relation to Public Health. This Course comprises twenty lectures and is of a semi-popular character. The lectures are fully illustrated by the lantern and slides. The lectures are given from 7:30 to 8:30 one evening each week, second semester. All male students of the University are admitted to these lectures.

4. Therapeutics. Aside from drugs, general therapeutical considerations, such as hydrotherapy, electrotherapy, dietetics, etc., receive due attention. Prescription writing becomes a matter of daily drill, and the elegance or incompatibility is tested by actual preparation by the student. Sections of the class under charge of the instructor visit the Parker Memorial Hospital to familiarize themselves with the technique of the hypodermic syringe, aspirator, cautery, stomach tube, stupe, and with various baths and packs. The student closely follows at the bedside the action of drugs in disease, dietetics, nursing, etc., and reports upon the same. *Three times a week. Third Year.*

Obstetrics and Gynaecology

Professor MYER.

1b, 2a. Obstetrics. Lectures and clinics. A complete set of abnormal pelves, Auzoux models of the uterus and contents at the various periods of gestation and charts are employed for demonstration. Each student is required to diagnose presentations, positions and to perform all obstetrical operations on the Schultze-Winckel manikin. The maternity ward of the Hospital offers opportunity for the observation of cases, and besides this ample material is furnished the students in the outdoor clinic, where they are permitted to care for cases, under the supervision of the head of the department. *Three times a week.* Second semester, Third Year; first semester, Fourth Year.

3. Gynaecology. The lectures with demonstration of museum specimens give the students a general theoretical knowledge of the subject. Practical work is obtained in the outdoor clinic. All clinical operations are witnessed by the students. *Three times a week.* Fourth Year.

Ophthalmology and Otology

Professor NOYES.

1. Diseases of the Eye and Ear. Lectures, recitations and clinics. The work in this Course is largely practical. The student familiarizes himself with the technique of examination of the eye, ear, nose, and throat by actual work in the dark-room of the hospital. Each member of the class works at the test case in the determination of errors of refraction, under the direction of the instructor in charge. Clinical material is abundant and the student assists in the treatment of and observes a great variety of cases. Instruction in Rhinology and Laryngology is given in this Course during the second semester. Texts: Ophthalmology, May. Fuchs; Otology, Gradle, Politzer; Rhinology, Gradle, Browne. *Three times a week.* Fourth Year.

Pathology, Bacteriology, and Hygiene

Professor MILLER; Mr. CROCKETT.

1a. Bacteriology. Introductory and general. While essentially a pure science Course and intended to give the student a comprehensive view of the whole field of bacteriology, independent of any particular professional application, special attention is given to the technique of the science. The student prepares media, separates and makes pure cultures, sterilizes, incubates, disinfects, and prepares and studies microscopic pre-

Course is offered to afford students of human Medicine an opportunity to broaden their knowledge of clinical symptoms and pathological processes. Special attention is given to those diseases of lower animals that are communicable to man. Certain of the non-communicable diseases of the lower animals are considered, where the comparative study is deemed especially important for the better understanding of the corresponding human maladies. The students are made familiar by practical demonstrations with clinical as well as finer methods of diagnosis. They are also instructed in the measures that are employed for eradicating or controlling these sources of infection to man. The library, laboratory, and clinics of the Veterinary department are available as aids to this instruction. *Three times a week. Third Year.*

2. An opportunity for advanced and research work will be afforded students who have proper preparation. Elective.

Medicine and Therapeutics

Professor MOSS.

1. Practice of Medicine. Lectures, recitations, and clinics. Text-books: Anders and Osler. *Three times a week. Third Year.*

2. Clinical Medicine. Students in this year are required to make written reports of cases in their charge, and to write articles upon subjects assigned. These reports and articles are discussed by the class and the Professor. Monographs and essays upon important subjects, by eminent authors, are reviewed before this class, and the students are required to make digests. *Three times a week. Fourth Year.*

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4. Therapeutics. Aside from drugs, general therapeutical considerations, such as hydrotherapy, electrotherapy, dietetics, etc., receive due attention. Prescription writing becomes a matter of daily drill, and the elegance or incompatibility is tested by actual preparation by the student. Sections of the class under charge of the instructor visit the Parker Memorial Hospital to familiarize themselves with the technique of the hypodermic syringe, aspirator, cautery, stomach tube, stupe, and with various baths and packs. The student closely follows at the bedside the action of drugs in disease, dietetics, nursing, etc., and reports upon the same. *Three times a week. Third Year.*

Obstetrics and Gynaecology

Professor MYER.

1b, 2a. Obstetrics. Lectures and clinics. A complete set of abnormal pelves, Auzoux models of the uterus and contents at the various periods of gestation and charts are employed for demonstration. Each student is required to diagnose presentations, positions and to perform all obstetrical operations on the Schultze-Winckel manikin. The maternity ward of the Hospital offers opportunity for the observation of cases, and besides this ample material is furnished the students in the outdoor clinic, where they are permitted to care for cases, under the supervision of the head of the department. *Three times a week.* Second semester, Third Year; first semester, Fourth Year.

3. Gynaecology. The lectures with demonstration of museum specimens give the students a general theoretical knowledge of the subject. Practical work is obtained in the outdoor clinic. All clinical operations are witnessed by the students. *Three times a week.* Fourth Year.

Ophthalmology and Otology

Professor NOYES.

1. Diseases of the Eye and Ear. Lectures, recitations and clinics. The work in this Course is largely practical. The student familiarizes himself with the technique of examination of the eye, ear, nose, and throat by actual work in the dark-room of the hospital. Each member of the class works at the test case in the determination of errors of refraction, under the direction of the instructor in charge. Clinical material is abundant and the student assists in the treatment of and observes a great variety of cases. Instruction in Rhinology and Laryngology is given in this Course during the second semester. Texts: Ophthalmology, May. Fuchs; Otology, Gradle, Politzer; Rhinology, Gradle, Browne. *Three times a week.* Fourth Year.

Pathology, Bacteriology, and Hygiene

Professor MILLER; Mr. CROCKETT.

1a. Bacteriology. Introductory and general. While essentially a pure science Course and intended to give the student a comprehensive view of the whole field of bacteriology, independent of any particular professional application, special attention is given to the technique of the science. The student prepares media, separates and makes pure cultures, sterilizes, incubates, disinfects, and prepares and studies microscopic pre-

parations. The knowledge and practice obtained in this Course prepare the student for the further study of the subject as a pure science or for the practical applications of its methods in the study of domestic and municipal hygiene, in agriculture, dairying, brewing and other industries, in household economics, sanitary engineering, and in veterinary and human medicine. Elective to students who have made the necessary preparation in chemistry, physics, and biology. Laboratory. *Three times a week.* Second Year.

2a. Pathology. General and comparative. The conduct of the necropsy,—macroscopic, microscopic, bacteriologic, experimental, writing of protocol. The student is trained in the examination of fresh tissues and body fluids. He makes and studies teased preparations and frozen sections, identifies parasitic worms and their eggs, as well as other animal parasites, bacteria and fungi. The necropsy of certain human subjects is conducted entirely by students, under the supervision of the head of the department. Within the year each student makes a complete microscopic investigation of the pathological condition of the tissues and organs of at least one human body, fixing, hardening, imbedding, sectioning, staining, mounting, and reporting upon the same in writing. The cold storage plant of the laboratory serves to preserve the original material indefinitely, and, when all preliminary microscopic preparation is completed, it is brought forth for renewed study in the fresh condition and for comparison with the microscopic preparations. The laboratory possesses much uncut pathological material obtained from many American and European hospitals, as well as a large collection of microscopic preparations. Laboratory. *Three times a week.* Second Year.

3b. Pathology. General and comparative. What has been said above in explanation of Courses 1a and 2a applies to this Course. The work includes the study of degeneration, regeneration, inflammation, the effects of poisons, the infections, animal parasites, and tumors. In the study of infections is included the growth of the infectious organisms in pure culture, their examination and the study of their effects upon rabbits, guinea pigs, mice, and other small domestic animals. While, as in Course 2a, the work centers about the post-mortem examination, the radius of operation extends into the field of experimental pathology and is rounded out by the study of preserved material derived from former necropsies or obtained elsewhere. When the work of the student is not directed to post-mortem examination or demonstration of gross material, about five microscopic sections are given daily to the student for staining, mounting, and study. These preparations have a permanent value and become the property of the student. Lectures, *Three times a week*; Laboratory, *Three times a week.* Second Year.

4a. Pathology. Special. Having completed the Course in general and experimental pathology, the work of the student is directed to the various pathological conditions of the individual organs.

5. Bacteriology. Research Work. A limited number of properly qualified students are admitted to the laboratory for work of this kind. The results of such work must be submitted in writing and be of such a nature as to be approved for publication.

6. Pathology. Research Work. Explanation as given under Course 5.

7b. Hygiene. Lectures with demonstrations on the following subjects: History of Hygiene; hygienic conditions of air and soil, with special reference to the influence of climate (acclimatization) upon diseases; general hygiene of cities, dwellings, schools, prisons, etc.; commercial hygiene; ways in which important diseases, such as malaria, typhoid, diphtheria, tuberculosis, pneumonia, influenza, whooping cough, small-pox, measles, scarlet fever, dysentery, cholera, bubonic plague, etc., spread, and the means of preventing these epidemics; vaccination against small-pox, hydrophobia, and other diseases; disinfection with special reference to households and schools, quarantines; organization of boards of health in different countries; value of compulsory registration, vital statistics, etc. Elective to properly qualified students. Lectures. *Three times a week. Third Year.*

Physics

Professor LIPSCOMB.

1. General Physics. Emphasis is given to those facts of Mechanics, Sound, Heat, Light and Electricity, which have special application to Medicine and Surgery. Lectures and Recitations, W., at 9:30; Laboratory, M. F., 9:30-12. First Year.

Physiology and Pharmacology

Professor GRENE; Mr. MOORE; Mr. FREUDENBERGER.

The Courses in Anatomy, Histology, Physics, and Chemistry given in the first year of Medicine, or the conditions outlined in the announcement of the Academic Department (see page 93) are prerequisites for admission to these Courses.

2. Experimental Physiology. This Course gives a detailed survey of Animal Physiology. Sets of apparatus are provided in the laboratory and selected experiments illustrating the facts and fundamental principles of the subject are performed by the individual student under the personal supervision of the instructors. Text-book: American Text-

1000

book of Physiology. Lectures, *M. W.*, at 8:30; Laboratory, *M. W.*, 9:30-12. Second Year.

3a. Comparative Physiology. The principles of Physiology as illustrated by the simpler forms of animal life. Lecture, *F.*, at 8:30; Laboratory, *F.*, 9:30-12. Second Year.

4b. Pharmacology. This Course presents the physiological action of chemicals. The laboratory experiments are distributed to groups of students and each group is required to demonstrate to the other members of the Course. Text-book: Cushney's Pharmacology and Therapeutics. Lecture, *F.*, at 8:30; Laboratory, *F.*, at 9:30. Second Year.

Surgery

Professor MCALESTER.

1b. (a) Principles of Surgery. Didactic lectures and recitations, ending with a thorough examination. (b) Operative Surgery. This Course includes, (1) bandaging, fracture dressings, etc., (2) operations on the cadaver, (3) operations on the lower animals. As careful attention is paid to details as on the human subject. In this Course the student does the work under supervision as in other laboratories. *Three times a week.* Third Year.

2. Clinical Surgery. This Course will be given at the Parker Memorial Hospital and the Boone County Infirmary. *Three times a week.* Fourth Year.

Zoology

Professor LEFEVRE; Miss MCGILL.

4b. Embryology of Vertebrates. The Course is designed to lay the foundation of Vertebrate Embryology. In the laboratory the development of the chick is carefully studied from preparations of entire embryos and from sections representing successive stages throughout the development. These observations are used as a basis of comparison with the development of higher forms, including man. Such questions as ovulation, menstruation, determination of the age of embryos, relation of the embryo to the uterus, and the mechanism of nutrition of the embryo, receive special attention. Lecture, *T.*, at 10:30; Laboratory, *T.*, 8:30-10:30. *Th.*, 8:30-11:30.

Special Courses

1b. Massage and Medico-Gymnastics. Lectures and demonstrations on the technique of Massage, and the treatment by gymnastics of

asymmetry, malnutrition, or impaired functional processes. *Once a week.*
Fourth Year. Professor HETHERINGTON.

2b. Medical Jurisprudence. *Once a week.* Fourth Year. Professor MCALESTER.

3b. Medical Climatology. Lectures upon climate as related to health and disease. Special attention is paid to the climatic conditions prevalent at the various health resorts. *Once a week.* Fourth Year. Mr. HACKETT.

PARKER MEMORIAL HOSPITAL TRAINING-SCHOOL FOR NURSES.

The Parker Memorial Hospital Training-school for Nurses is instituted to give three years' training to women desirous of becoming professional nurses.

Those wishing to enter must apply, personally or by letter, to the Superintendent of Nurses at the Hospital, who will furnish instructions respecting the personal information to be given by applicants. The application should be accompanied by a physician's certificate of sound health and unimpaired faculties and two certificates of good character. Applicants must be between the ages of 21 and 35 years, and of at least average height and physique. Women of superior education are preferred.

Candidates, if approved, will be received on probation for three months. They will not be permitted to join the school formally until the end of the third month, when, if accepted, they must sign an agreement to complete the prescribed course of three years, and to conform to all rules. At the end of the first year, the record of the student will be carefully scrutinized, and the right is reserved to terminate them or at any time the connection of any student with the school for inefficiency, misconduct, a generally unsatisfactory record, or for any other reason which may be deemed sufficient by the Hospital authorities.

In addition to board, lodging, and a reasonable amount of laundry work, the students will be given \$8 monthly to meet expenses incidental to the training. In sickness the students will be cared for but the time so lost must be made up (and money may be deducted from their allowance).

The Course will include practical and theoretical instruction in the nursing of medical, surgical, obstetrical, and gynaecological cases, sick diet cooking, massage, and the application of electricity. Instruction will also be given in anatomy, physiology, bacteriology and hygiene.

The final examination for the Diploma will be held by members of the medical and surgical staff.

For special announcement of the Medical Department, address Irvin Switzler, Registrar, Columbia, Mo.

For further information concerning the Medical Department, address,
A. W. MCALESTER, M. D., Dean,
Columbia, Mo.

VI. DEPARTMENT OF MILITARY SCIENCE AND TACTICS

(Created by statute the Missouri State Military School.)

WILLIAM DIXON CHITTY, Captain, 4th U. S. Cavalry,

Professor of Military Science and Tactics, and Commandant of Cadets.

Appointment of State Cadets:

The following extracts from the Revised Statutes, 1899, of Missouri (sections 10561-6 inclusive), will be of interest to those who desire to receive appointments as cadets:

"The Military Department of the University of the State of Missouri as organized under section 1225, Revised Statutes of the United States, and section 10507, Revised Statutes of Missouri, 1899, is created the Missouri State Military School.

"The corps of cadets of the Missouri State Military School shall consist of appointees of Senators and Representatives, and such students as may voluntarily enter such school. All appointments under this section shall be for the term of two years. Each Senator and Representative of the General Assembly of Missouri shall have the power to appoint a cadet from his district by the first day of August of each year: Provided, that if there shall be no application for such cadetship in any district by the first day of August, in any such year, then such appointment may be made from any other district in this state; and, provided, that in case of death, resignation or expulsion from the University of any cadet from such district, the Senator or Representative thereof may fill such vacancy at any time. All appointees under this section shall pass the required examination for admission to the University.

"Cadets receiving instruction, as provided in the preceding section, shall be matriculated in all Academic departments, and in the College of Agriculture and Mechanic Arts of the University, free from tuition and other fees.

"The corps of cadets, as provided in the preceding sections, shall have the military organization prescribed for the National Guard of the state and be reckoned a part thereof, and as such entitled to all such provisions as are or may hereafter be made for the National Guard of Missouri.

"The military government and discipline of the cadets shall be prescribed by regulations prepared by the Faculty of the University and approved by the Governor of the state. The officers of the corps of cadets shall be appointed and commissioned by the Governor of the state, upon the recommendation of the Faculty of the University, and shall have the powers conferred by said regulations.

"Cadets shall be individually responsible for all state property issued directly to them, and shall constitute a guard for the safe-keeping and preservation of all University property."

Requirements for Admission:

No cadet will be received who is less than five feet, one inch in height, or who is in any way physically disqualified for military service, or who has not been duly matriculated in some other Department of the University.

All male students of the University not physically disqualified, will be allowed to enroll themselves as voluntary cadets. A copy of the regulations for the government of the cadets is given to each cadet upon his entrance into the Missouri State Military School. Cadets should report by September 11, if possible. Vacancies may be filled at the discretion of the Senators and Representatives.

Equipment and Supplies:

Two hundred and ten Springfield cadet rifles of the latest model; one Gatling gun, cal. 45, with full equipment; two 3.2 inch rifled field guns (breech loaders), with carriages and implements; twenty-five sabres, and a suitable amount of ammunition and target materials, are furnished by the United States. The state supplies ammunition, camp equipage, utensils, etc. The University supplies instruments and instruction for the band.

Uniforms:

Cadets wear but one style of uniform, known as the undress or fatigue uniform. Uniforms must be worn at all military exercises, and tailor made uniforms are supplied to volunteer cadets at a contract price (about \$12.50). The state usually furnishes uniforms to regularly appointed cadets free of cost (one entire uniform every year to each appointed cadet, depending upon amount of appropriation by Legislature).

Regulations:

Cadet regulations prescribe that military drill, etc., shall be held at least three hours a week, one of which shall be for theoretical and two for practical instruction. The regulations require, also, whenever the means of the University permit it, an annual encampment of from eight to

ten days, during which the instruction is entirely military and practical. Here the cadets are instructed in all the duties of camp life. They conduct their own commissary and quartermaster departments. They have target practice at 100, 200, 300, and 400 yards, perform the duties of sentinels, patrols, etc., and are given all the drills and ceremonies prescribed by the two years' course. The expenses of the encampment are borne by the University. A copy of the regulations may be secured at the Commandant's office. Every cadet must strictly conform to these rules.

COURSE OF INSTRUCTION.

FIRST YEAR.

First year cadets are instructed by the several captains.

Practical instruction in the schools of the soldier, company, and battalion (infantry), and extended order.

Practical instruction in rifle-firing, 100, 200, 300, 400, and 500 yards.

Practical instruction in duties of camp, embracing guard duty, etc.

Recitations in infantry drill regulations through school of the company, ceremonies of guard mounting, dress parade, inspection, review, muster and extended order.

Recitations in guard duty and cadet regulations.

Recitations in artillery tactics, sabre drill, etc.

SECOND YEAR.

Second year cadets are instructed by the Commandant.

Practical instruction in the schools of the company and battalion, and extended order.

Practical instruction in the service of field-guns (foot battery), with mechanical manoeuvres.

Practical instruction in rifle-firing, 100, 200, 300, 400, and 500 yards.

Practical instruction in the duties of camp life, embracing guard duty, etc.

Practical instruction in military signaling.

Recitations in infantry drill regulations, school of the battalion.

Recitations in artillery tactics, manual of the piece dismounted, etc.

Recitations in Military Science:

Lectures are given by the Commandant on army organization, the Army of the United States, army regulations, courts martial, and military law, the customs of war, security and information (including outposts, advance and rear guards, patrols, reconnoissances, orientation, and map reading), guard duty, castrametation, field service, field fortifications, rifle-firing, and target practice.

Recitations are held during the winter months, when the weather is unfit for drill. All cadets not included in the two preceding classes are required to take a short review of the previous work.

The artillery detachment will probably be re-established next year. Suitable shelter will be provided for the new cannon by that time.

Certificate of Proficiency:

To have passed through the entire course does not entitle a cadet to receive a certificate of proficiency in Military Science and Tactics, but it is the rule now adopted in the University, that the certificate will be issued to every cadet, state or volunteer, who takes the entire course and attains a grade of at least 70 per cent in *every examination* given during the two years in Military Science and Tactics.

Prizes:

The Curators have provided an elegant silver cup to be awarded each year to the best drilled company.

A gold medal is usually given to the best drilled private, and a target medal to the best marksman.

Cadet Officers:

Battalion Staff.

Cadet Major	E. E. Lushbaugh
Cadet First Lieutenant and Adjutant.....	M. Y. Powell
Cadet First Lieutenant and Quartermaster.....	J. T. Davis

Company A.

Cadet Captain	_____
Cadet First Lieutenant	W. M. Kratt
Cadet Second Lieutenant	A. R. Eitzen

Company B.

Cadet Captain	F. W. Sansom
Cadet First Lieutenant	J. Brundige
Cadet Second Lieutenant	E. F. Robinson

Company C.

Cadet Captain	W. F. Miller
Cadet First Lieutenant	E. E. Percy
Cadet Second Lieutenant	W. H. Goodson

Company D.

Cadet Captain	J. S. Boman
Cadet First Lieutenant	C. J. Sloop
Cadet Second Lieutenant	R. T. Finley

Artillery.

Cadet CaptainR. H. Jesse, Jr.
 Cadet First LieutenantF. C. Hilder
 Cadet Second LieutenantA. Knabe

Band.

Cadet Sergeant and Drum MajorL. R. Bothwell
 LeaderF. Pannell (Civilian)
 Chief TrumpeterJ. N. Edy

Those cadets are appointed to office who show ready obedience, zeal, and capacity in the discharge of military duty. The Governor of Missouri issues commissions to those entitled by their battalion rank to receive them.

State Commissions:

The Revised Statutes of Missouri, 1899, provide as follows:

"Chapter 130. Section 8601. Every graduate of any college in the state of Missouri in which military instruction is regularly given by an officer of the United States Army detailed for that purpose, who shall have received military instruction during a course of four years, shall be entitled to a commission as brevet second lieutenant of the National Guard of Missouri, subject to such physical examination as to ability as the commander-in-chief may from time to time prescribe: Provided, that application for such commission be made within one year after graduation from such college, and that such applicant shall be at the time a citizen of the state of Missouri."

VII. COLLEGE OF AGRICULTURE AND MECHANIC ARTS

FACULTY.

RICHARD HENRY JESSE, LL. D.,
President.

HENRY JACKSON WATERS, B. S. A.,
Dean of the Faculty, and Director of the Experiment Station.

†PAUL SCHWEITZER, Ph. D., LL. D.,
Professor of Agricultural Chemistry, and Chemist to the Experiment Station.

EDWARD ARCHIBALD ALLEN, Litt. D.,
Professor of English Language and Literature.

MILLARD LEWIS LIPSCOMB, A. M.,
Professor of Physics.

JOHN WALDO CONNAWAY, D. V. S., M. D.,
Professor of Comparative Medicine, and Veterinarian to the Experiment Station.

JOHN CHARLES WHITTEN, B. S., M. S., Ph. D.,
Professor of Horticulture, and Horticulturist to the Experiment Station.

FREDERICK BLACKMAR MUMFORD, B. S., M. S.,
Professor of Agriculture, and Curator of the Agricultural Museum.

JOHN MOORE STEDMAN, B. Sc.,
Professor of Entomology, and Entomologist to the Experiment Station.

WILLIAM GEORGE BROWN, B. S., Ph. D.,
Professor of Chemistry.

JOHN NELSON FELLOWS, B. S., A. M.,
Professor of Mathematics.

CURTIS FLETCHER MARBUT, B. S., A. M.,
Professor of Geology and Mineralogy, and Curator of the Geological Museum.

†Absent during session of 1902-3.

HOWARD BURTON SHAW, B. C. E., A. M.,
Professor of Electrical Engineering.

FREDERICK PUTNAM SPALDING, C. E.,
Professor of Civil Engineering.

FREDERICK HANLEY SEARES, B. S.,
Professor of Astronomy, and Director of the Lows Observatory.

†LUTHER MARION DEFOE, A. B.,
Professor of Mechanics.

ROBERT MONTGOMERY BIRD, A. B., B. S., Ph. D.,
Acting Professor of Agricultural Chemistry, and Chemist to the Experiment Station.

BENJAMIN MINGE DUGGAR, M. S., A. M., Ph. D.,
Professor of Botany.

ARTHUR MAURICE GREENE, B. S., M. E.,
Professor of Mechanical Engineering.

†HENRY CAPLES PENN, A. B., A. M.,
Assistant Professor of English Language and Literature.

SIDNEY CALVERT, B. Sc., A. M.,
Assistant Professor of Chemistry.

HENRY MARVIN BELDEN, A. B., Ph. D.,
Assistant Professor of English Language and Literature.

OSCAR MILTON STEWART, Ph. B., Ph. D.,
Assistant Professor of Physics.

CLARENCE HENRY ECKLES, B. Agr., M. Sc.,
Assistant Professor (in charge) of Dairy Husbandry.

LOUIS INGOLD, A. B., A. M.,
Acting Assistant Professor of Mathematics.

H. V. S. JONES, A. B.,
Acting Assistant Professor of English Language and Literature.

MARY ESTELLE PORTER, B. L.,
Instructor in Commercial Studies.

†Absent during session of 1902-3.

RICHARD B. MOORE, B. S.,
Instructor in Chemistry.

THOMAS JACOB RODHOUSE, B. S.,
Instructor in Drawing.

JANE A. L. ZABRISKIE,
Instructor in Household Economics.

ROLLA ROY RAMSEY, A. B., A. M., Ph. D.,
Instructor in Physics.

WALTER SCOTT WILLIAMS, C. E.,
Instructor in Civil Engineering.

ARTHUR B. COBLE, A. B., Ph. D.,
Instructor in Mathematics.

WILLIAM HUTCHINSON COOK,
Instructor in Manual Training and Shopwork.

LOWELL A. GOODMAN, C. E., Secretary of the State Horticultural Society,
Instructor in Horticulture.

CHARLES WENTWORTH HODSDON, B. S.,
Instructor in Mechanical Engineering.

N. F. MURRAY, President of the State Horticultural Society,
Instructor in Horticulture.

HERMAN SCHLUNDT, B. S., M. S., Ph. D.,
Instructor in Physical Chemistry.

GEORGE MASON TUCKER, B. S., Ph. D.,
Instructor in Agriculture.

ARTHUR C. DUNCAN,
Instructor in Shopwork.

WALTER LAFAYETTE HOWARD, B. Agr., B. S.,
Assistant in Horticulture, and Assistant Horticulturist to the Experiment Station.

ERNEST HOWARD FAVOR, A. B.,
Assistant in Botany.

E. L. SHAW, B. S.,
Assistant in Agriculture.

LECTURERS.

†A. E. HACKETT,
Lecturer on Oulmatology.

*D. F. LUCKEY, D. V. S., State Veterinarian.
Non-resident Lecturer on Veterinary Surgery.

SPECIAL LECTURERS TO THE SCHOOL OF AGRICULTURE.

JOHN GOSLING, Kansas City. Mo.,

T. E. ORR, Beaver, Pa.

SPECIAL LECTURERS TO THE SCHOOL OF ENGINEERING.

LOUIS J. ASH, Kansas City. Mo.

J. A. L. WADDELL, Kansas City, Mo.

Historical Statement:

This College had its origin in the beneficence of National, State, and local governments. Its location, objects, and aims are defined in the following extracts from the Acts of Congress and the laws of the state of Missouri:

"There is hereby established a college of agriculture and mechanical arts at Columbia, and a school of mines and metallurgy at Rolla, provided for by the grant of the congress of the United States, as distinct departments of the university of the state of Missouri." (R. S. of Missouri, 1899, Sec. 10504.)

"The leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the legislatures of the states may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life." (Act of Congress, July 2, 1862, Sec. 4.)

"To effect the leading objects of the colleges, as herein established, it is provided that the students and members thereof shall be admitted to the library, museums, models, cabinets, and apparatus, and to all lectures and instructions of the university, which now exist or may hereafter exist, and to all other rights and privileges thereof, in a manner as full and ample as the students of any other department in said university; and to

†In the service of the U. S. Government.

*In the service of the State Board of Agriculture.

provide for instruction in military tactics, as herein required, it is enacted that in case a system of military education shall be established by congress, the university of the state of Missouri is hereby required by law to make the necessary provision for carrying out the plan so established in connection with the institution." (R. S. of Missouri, 1899, Sec. 10507, p. 2017.)

"The college of agriculture and mechanic arts and the school of mines and metallurgy herein provided for, shall have each a separate and distinct faculty, whose officers and professors may be the same in whole or in part as the officers and professors in other colleges and departments of the University." (R. S. of Missouri, 1899, Sec. 10508.)

The citizens of Boone county made a donation of \$90,000 for the erection of a building and the purchase of lands for an experimental farm and this College was permanently located at Columbia as a Department of the University, and the School of Mines and Metallurgy was located at Rolla, in Phelps county. The latter is under the same general control as the College of Agriculture and Mechanic Arts.

Endowment of the College:

1. The proceeds of the sales of public lands donated to Missouri by the act of Congress of July 2, 1862. The state received as her share two hundred and seventy-five thousand acres, of which there have been sold up to date two hundred and thirty thousand nine hundred and three acres, yielding three hundred and fifty-five thousand dollars. This sum is invested in state certificates of indebtedness, at 5 per cent, and yields seventeen thousand five hundred dollars. Of this amount one-fourth is by law appropriated to the support of the School of Mines and Metallurgy, at Rolla.

2. The annual appropriation of \$25,000, under the act of Congress of August 30, 1890 (Morrill bill). Of this amount about one-sixteenth is by law appropriated to the "Lincoln Institute," at Jefferson City, for the education of negro children in Agriculture and Mechanic Arts, and one-fourth of the remainder is given to the School of Mines and Metallurgy, at Rolla

3. The College Farm, which cost originally \$60,000.

4. \$80,000 from Boone County.

The above sums, together with the assistance derived from the association of the College of Agriculture with the University, furnish an abundant income for all purposes of instruction and scientific investigation.

Organisation:

The College is divided into three divisions, as follows:

- A—The School of Agriculture.
- B—The Experiment Station.
- C—The School of Engineering.

A. SCHOOL OF AGRICULTURE.

Requirements for Admission:

For information in regard to the requirements for admission to the Collegiate Course in Agriculture, see pages 82-88.

No entrance examination or special preparation is required for admission to the Short Winter Courses.

I. SHORT WINTER COURSES.

(See Special Circular.)

The School of Agriculture now offers four Short Winter Courses, as follows: Plant Production; Animal Husbandry; Horticulture; Dairying.

Each of these is a special course designed to occupy the entire time of the student.

It is the aim to give the student the largest amount of thoroughly practical information about farming, stock breeding, stock judging, dairying, gardening, fruit-growing, veterinary science, carpentry, and blacksmithing, possible in twelve weeks, and, at the same time, instruct him in the elements of Chemistry, Geology, Entomology, and Botany as applied to Agriculture and Horticulture.

To suit the convenience of farmers these courses are given in the winter. They are open to all over sixteen years of age, and no entrance examination or special preparation is required. An entrance fee of \$5 and \$2 for each laboratory or shop taken cover all college expenses.

Full details of all of these short courses will be given in a special circular, which will be ready for distribution in September, 1908, and will be sent free upon application to the Dean of the College.

Course in Plant Production:

This Course is entirely devoted to the study of plant production. It includes lectures and demonstrations on growing, cultivating, harvesting, and marketing of farm and garden crops. In addition to the above subjects students will be required to take certain courses on Soils, special work in Botany, Agricultural Chemistry, Entomology, Land Draining, and Carpentry and Blacksmithing.

Course in Animal Husbandry:

In this Course the student's time is occupied in the study of feeding,

breeding, judging, and general management of farm animals. Actual examination of the animals representing the approved types gives the student a practical knowledge of the best types for the various purposes of the farm.

Course in Horticulture:

With a view to aiding in the development of the horticultural interests of the state by the dissemination of correct information concerning the best modern methods in the management of nurseries and orchards and in the growing of small fruits, flowers, and vegetables on a commercial scale, and by instruction in the application of the sciences underlying these arts, a Short Winter Course in Horticulture is offered.

Course in Dairying:

This Course is designed especially for those who wish to obtain a knowledge of modern dairy practice as related to the creamery and the cheese factory, and at the same time to study the scientific principles upon which this practice is based.

The facilities for teaching dairying provided by our new building and equipment are unexcelled. While special attention will be given to the manufacture of dairy products, feeding for the production of milk and study of dairy breeds and dairy types will be included. The dairy building is supplied with a complete equipment for separating and testing milk, making butter and cheese, and pasteurizing milk.

II. COLLEGIATE COURSE IN AGRICULTURE.

There is a constantly increasing demand for thoroughly well trained men in Agriculture. Graduates of the Collegiate Course are in great demand as farm managers, experiment station workers, teachers of Agriculture, and editors of agricultural newspapers. The sons of farmers, also, who will eventually become owners and managers of farms will find this course especially adapted to their needs.

The impression that this course is less practical than the Short Winter Courses is wholly unwarranted. The instruction in the practical subjects is more thorough than is possible in the shorter courses. The instruction given in the related sciences is essential to a clear understanding of the principles and methods of practice.

The course includes general culture subjects, and the opportunities for free electives make it possible for the student to secure a liberal education while pursuing the technical work of the course.

COURSE OF INSTRUCTION.

Freshman Year.

<i>First Semester.</i>	<i>Second Semester.</i>
8:30 Agronomy, W. F..... 2	8:30 Agronomy, W. F..... 2
9:30 Botany, M. 1	9:30 Botany, M. 1
10:30-12:30 Shop, M. W. F... 3	10:30-12:30 Shop, M. W. F... 3
8:30 English, T. Th. S..... 3	8:30 English, T. Th. S..... 3
1:30-4 Botany, W. F..... 2	1:30-4 Botany, W. F..... 2
1:30-4 Physics, T. Th. S..... 3	1:30-4 Physics, T. Th. S..... 3
1:30-4 Agronomy, M. 1	1:30-4 Agronomy, M. 1

Sophomore Year.

<i>First Semester.</i>	<i>Second Semester.</i>
8:30 Horticulture, M. W. F... 3	8:30 Horticulture, M. W. F... 3
9:30 Stock Breeding, T. Th. S. 3	9:30 Animal Husbandry, T. Th. S. 3
9:30-12:30 Chemistry, M. W. F. 3	9:30-12:30 Chemistry, M. W. F. 3
1:30-4 Drawing, T. Th. S.... 3	1:30-4 Dairying, T. Th. S.... 3
Elective 3	Elective 3

Junior Year.

<i>First Semester.</i>	<i>Second Semester.</i>
8:30 Horticulture, T. Th. S... 3	10:30 Entomology, M. W. F... 3
10:30 Agricultural Engineering, T. Th. S..... 3	10:30 Stock Feeding, T. Th. S. 3
1:30-4 Veterinary Science, T. Th. S. 3	1:30-4 Veterinary Science, T. Th. S. 3
Elective 6	Elective 6

Senior Year.

<i>First Semester.</i>	<i>Second Semester.</i>
9:30 Geology, T. Th. S..... 3	10:30 Agricultural Chemistry, T. Th. S. 3
10:30 Agricultural Chemistry, T. Th. S. 3	Elective 12
Elective 9	

Required Work:

All students who are candidates for a degree must satisfactorily complete 120 hours of work. Of this work, 81 hours must consist of the subjects laid down in the foregoing schedule.

Elective Work:

Students who have finished the required courses in any subject may elect work in accordance with the advice and approval of the Dean. Sufficient time is given for electives in the course so that students in the upper classes may concentrate their energies upon a chosen line of work. It is advised in all cases that students elect not only a technical subject but also related science courses. A student who specializes in Horticulture should also do special work in Botany and Entomology, while a student who elects Animal Industry as a major should take certain courses in Zoology and Veterinary Science. It is expected that those who intend to engage in college or experiment station work will elect modern languages at the beginning of the Sophomore year. The students should in all cases advise with the Professors and secure the written approval of the Dean before electing courses.

The Degree of Bachelor of Science in Agriculture is conferred upon all students who successfully complete the course.

Graduate Work:

All students who desire to prepare themselves for agricultural college or experiment station work need a more thorough training than can be given in the undergraduate courses. For graduate work see Courses in Detail, below, and also p. 61.

COURSES IN DETAIL.

[Courses designated by a number with the letter a attached, thus: 4a, 6a, are given the first semester only. Those designated by a number with the letter b attached, thus: 4b, 6b, are given the second semester only. Those designated merely by a number are continuous courses and are given both semesters. Short Winter Courses are indicated by the letter w after the number.]

Agriculture

Professor MUMFORD; Dean WATERS; Dr. TUCKER.

The instruction in this subject is thoroughly practical, and is intended to give a knowledge of the application of the natural sciences to the complex operations of Agriculture. Lectures and recitations are supplemented by practical demonstrations on the farm. In the class room the

student becomes familiar with the best rations, for example, and in the barn studies the effect of these rations, and determines their practical value. The study of live stock is based upon an examination of a large number of animals, so that the student begins the subject with a knowledge of the best types for various purposes.

1a. Agronomy. A. *Soils*. A study of the origin, formation, distribution, and classification of soils with reference to their agricultural value; the conditions of fertility and the circumstances that influence it; indications of fertility; barren and exhausted soils; improvement of soils; physical properties of soils, including their relations to air, water, and heat; capillarity, diffusion, and solution, as related to soil texture; farm drainage, including methods of construction; irrigation, tillage, plowing, subsoiling, harrowing, etc. B. *Fertilizers*. Constituents of plants; sources and specific action of the various elements of plant food; crops and materials used as fertilizers; methods of farming in relation to the conservation of fertility. Two lectures and one laboratory period a week. *M. W. F., at 8:30.* Dr. TUCKER. Freshman.

2b. Agronomy. *Farm Crops*. Plant breeding; variation, selection, self and cross fertilization; practical methods for increasing the yield of crops; conditions of germination and plant growth; rotation of crops; planting, growing, harvesting, and storing crops. The results of experiments at the Station are used in discussing the best methods of culture. The Missouri Experiment Station offers excellent opportunities for the illustration of this work. *M. W. F., at 8:30.* Dr. TUCKER. Freshman.

(Courses 1a and 2b, 3a and 4b, are elective for students in the Department of Education who are candidates for the Life Certificate.)

3a. Stock Breeding. This work begins with a careful study of the types of domestic animals. The score card is the basis in judging beef and dairy cattle, draft and light horses, mutton and wool sheep, and swine. After the student has become familiar with the most approved types, he studies the principles and methods of successful breeding, such as heredity, atavism, variation, selection, fecundity, influence of environment, inbreeding, cross-breeding, grading, telegony, etc. *T. Th. S., at 9:30.* Professor MUMFORD. Sophomore.

4b. Animal Husbandry. Special study of the live stock industry in its relation to other methods of farming. A study of the breeds of live stock, and special instruction in the breeding, feeding, and handling of cattle, horses, sheep, and swine. *T. Th. S., at 9:30.* Professor MUMFORD. Sophomore.

5a. Agricultural Engineering. Construction of barns, stables, and other shelters; plans for building silos, fences, etc. Road building is

considered with special reference to country roads. Attention is given to the mechanics of farm implements and machines, and for this purpose a new self-registering dynamometer has been provided. There is also a model of a horse arranged for determining by experiments the influence on draft of direction of traces, weight of horse, strength of hock muscles, etc., and an appliance for measuring the resistance to tractive force of incline and obstruction. *T. Th. S., at 10:30.* Dr. TUCKER. Junior.

6b. Stock Feeding. The laws of animal nutrition; composition of the animal body; fodders, the source of nutrients; digestion, resorption, circulation; respiration and excretion; formation of muscle, flesh, and fat; composition and digestibility as determining the value of feeding stuffs; their preparation and use; feeding for fat, milk, wool, work, and growth. *T. Th. S., at 10:30.* Professor MUMFORD. Junior.

7a. Judging Live Stock. Original research and practice in judging the domestic animals. Material for this work will be obtained on the College Farm and on the farms of breeders where typical animals are bred. *Two laboratory periods a week.* Professor MUMFORD. Elective.

8a. Animal Breeding. Original research and experimentation. A suitable breeding laboratory has been provided in which actual experiments will be in progress. The unsettled problems of breeding, such as the relative influence of parents, telegony, in-breeding, influence of age on prepotency, etc., will be investigated. Professor MUMFORD. Elective. Graduate and Undergraduate.

9a. Research and Experimental Work on Soils. The work of the U. S. Soil Survey in this state places particularly favorable opportunities within reach of students. Dr. TUCKER. Graduate.

10. Seminary. Reading and discussions by instructors and students of recent special investigations in Agronomy. Original papers upon assigned topics will be presented for discussions. Each student will be expected to contribute at least four such papers during the year. A reading knowledge of French and German is required. *Once a week.* Dr. TUCKER. Elective.

11. Seminary Studies of Experiment Station Bulletins. Students are required to make abstracts of a sufficient number of bulletins, bearing on a selected line of work, to become familiar with their scope and aim. Original papers are prepared by the students and discussed by all the members of the class. *Once or twice a week.* Professor MUMFORD. Elective.

12w. Stock Feeding. The composition and digestibility of feeding stuffs; the preservation and preparation of coarse fodders; hay-making; ensilage; steaming and cooking food; feeding standards, and the calcula-

tion of rations; growth and fattening; feeding for meat, milk, wool, etc.; effect of food upon the quality of the meat, wool, milk, and butter. Practice will be given in computing and compounding balanced rations for the various purposes named. Dean WATERS.

13w. Farm Crops. Conditions of germination and plant growth; special requirements of the various farm crops; rotation, cultivation, harvesting, and storing of crops; best varieties of corn, wheat, etc., for Missouri; some discussion of promising new crops, especially fertilizing crops,—cow peas, soy beans, alfalfa, etc. Dean WATERS.

14. Advanced Agronomy. Soil types and their relations to special crops, as indicated by mechanical analysis, and the influence of fertilizer materials, manures, acidity, alkalinity, tillage, and crops upon texture and available plant food, with special reference to Missouri agriculture *Three times a week*. Dr. TUCKER. Elective.

15w. Stock Breeding. Twenty-four lectures on the principles of breeding live stock. Special attention will be given to the practical application of the principles to actual methods employed in the improvement of the domestic animals. Professor MUMFORD.

16w. Judging Live Stock. Twenty-four laboratory periods in judging horses, cattle, sheep, and swine. Professor MUMFORD.

17w. Soils. Thirty-six lectures on the origin and formation of soils, their chemical and physical properties and practical methods of increasing their productiveness. Special attention is given to tillage and tillage implements. This course will include also a discussion of fertilizers, manures, and drainage. Dr. TUCKER.

NOTE:—All Courses marked w are offered only to students in the Short Winter Courses.

Facilities for Instruction and Research:

Libraries.—The Agricultural Library contains more than 3,500 bound volumes and 1,000 pamphlets. One of the most valuable features of this library is a complete file of the publications of every Experiment Station in the United States, neatly bound, and fully indexed. Files of the leading agricultural papers are accessible in the reading room. The general library of the University contains many volumes of great interest to students in agriculture.

The Agricultural Museum.—The value of a museum is mainly in furnishing illustrative material for study, and to this purpose the Agricultural Museum is well adapted. It contains a collection of wool fibers illustrating the influence of breeding and environment; a large assortment of cotton fibers and of fiber plants from various countries; and a systematic collection of the agricultural grasses of the United States. The forest woods

of the state are represented by block specimens showing transverse sections and bark characteristics, and by a collection of polished boards. In live stock there are skeletons of a horse, and hog, and stuffed specimens of the wild white cattle of Great Britain.

The Farm.—The farm is fully equipped with improved agricultural machinery, a dairy building, hay and stock scales, a silo, sheep, cattle, and horse barns, and model swine pens. The farm and its equipment is used primarily for the instruction of students.

Live Stock.—For the instruction of students in animal husbandry, the farm maintains typical specimens of the leading breeds of live stock. Among the breeds of cattle are a fine herd of Jerseys, and excellent specimens of the Short-horn, Aberdeen Angus, Hereford, and Holstein Friesian breeds. A herd of grade steers is fattened each season. There are specimens of the leading breeds of sheep and swine, together with grade animals.

Live Stock Building.—The Forty-first General Assembly made a liberal appropriation for a building to be used for live stock instruction. This building is used for veterinary work and live stock judging. The judging room is well lighted and heated so that the judging exercises are not now interrupted by cold or inclement weather. The whole building is constructed of native limestone and is conveniently located near the stables and feed lots. This addition to the college equipment for teaching animal industry makes it possible to offer a special short course in live stock husbandry. The time devoted to animal industry in the long course has also been increased fifty per cent.

Experiment Station.—The experiments constantly in progress by the station workers are of the highest instructional value to the students in animal industry and agronomy. It will be the aim of the department to encourage students to follow carefully such lines of work as pertain to the subjects discussed in the class room.

Practical Excursions.—Visits to successful farms and breeding establishments under the guidance of an instructor for the study of special phases of agriculture. This feature has proved an exceedingly valuable one in studying the application of the principles taught in the class-room.

Agricultural Chemistry

†Professor SCHWEITZER; Acting Professor BIRD.

1a. Agricultural Chemistry. General introduction; functions of the plant, including production, conversion, transportation, deposition of organic matter; physiological structure of the cell; respiration; the green

†Absent during session of 1902-3.

cell, an apparatus for doing work dependent upon light and heat; nitrogenous constituents of the plant and their relation to free and combined nitrogen; mineral constituents; membranous diffusion; assimilation; condition of vegetation. *T. Th. S., at 11:30. Junior.*

2b. Agricultural Chemistry. Soil—its formation, composition, alteration by mechanical, chemical, biological agencies; its relation to light, heat, and moisture. Soil physics in general. Manures, natural and artificial—their composition, application, value. Theory of rotation of crops; extensive and intensive cultivation; industrial agriculture in general. Farm sanitation; air, respiration, vitiated air, and ventilation, infection, contagion, germ theory of disease. Water—potable water, hard and soft; impurities in it, and their effects upon health and life. Food—composition and general properties; preservation of food; and food adulterations. *T. Th. S., at 11:30. Junior.*

3. Course for Graduate Students. As a major subject toward the degree of Master of Science in Agriculture the following Course is offered to those who have fulfilled the preliminary requirements given below and elsewhere in this Catalogue:

A. Systematic practice in selected refined methods of ultimate and proximate analysis of agricultural products; e. g., the ash of plants, soils, fertilizers, plant constituents, foods, milk and milk products, adulterants, insecticides, etc.

B. The preparation of a series of summaries of methods of work and results of important researches which have been carried out in the past or are in progress at the time, in the field of Agricultural Chemistry. The intent of this is to teach the student how to use a library and to force him to see how problems are attacked, as well as other manifest good results.

C. The carrying out of an investigation and the preparation of a thesis based upon it.

An effort will be made to assign one or more subjects under "B" which ought to suggest problems for investigation; one of which should furnish the data for a thesis, required under "C."

The work outlined is strictly a course in Applied Chemistry. It is designed to train men to investigate the Chemical-agricultural problems which confront the Experiment Stations throughout the country. The work upon analytical methods is purely incidental to this aim. In order to begin it, the student must have completed the equivalent of the undergraduate work offered by the department of Chemistry of this University in General Chemistry, Qualitative and Quantitative Analysis, and the

shorter course in Organic Chemistry as well as the course in Agricultural Chemistry given in 1a and 2b, above. If the undergraduate work has been suitably selected, this Course can be completed in one year after graduation.

Botany

Professor DUGGAB; Mr. FAVOR.

1a. General Physiology, and Comparative Morphology of the Cryptogams. First half of the semester, the fundamental principles of plant life, nutrition, growth phenomena, and the general relations of plants to external agencies. Second half of first semester, an elementary morphological study of the fungi and other cryptogamous plants. *M., at 9:30; W. F., 1:30-4.* Freshman.

2b. General Morphology and Histology of the Phanerogams, and Elementary Ecology. A Course in elementary embryology, the forms and adaptations of representative groups, the fundamentals of minute plant structure, life zones, and the factors of plant distribution. *M., at 9:30; W. F., 1:30-4.* Freshman.

6. Mycology. Studies in the morphology and physiology of representative groups of fungi, including, also, work with cultures, culture methods, and fungicides. *Three times a week.* Lecture, *W., at 8:30;* Laboratory hours by appointment.

8b. Advanced Physiology. Experimental work on nutrition and growth, the effects of stimuli and toxic agents on cell activities and development, and variation and inheritance. At least one year of chemistry is required. *Three times a week.* Lecture, *W., at 10:30;* Laboratory hours by appointment.

10w. Short course in botany for winter students in agriculture. Lectures on the fundamental principles of plant production with special reference to cultivated plants, and with a brief consideration of fungous diseases.

Courses 1a and 2b, constituting a year of elementary work, are prerequisites for all other regular work in botany. With proper preparation, students in agriculture may elect any of the courses offered in botany (see also Academic Department).

Facilities for Instruction and Research:

The Department of Botany occupies about one-third of the new building provided by the Forty-first General Assembly for Botany, Entomology, and Horticulture. There are general laboratories for physiological and structural botany, and special laboratories and culture rooms for phases of

the physiological and mycological work. The laboratories are provided with compound and dissecting microscopes, microtomes, steam and steam-pressure sterilizers, incubators, balances, and much necessary glassware. The herbarium contains a creditable special collection of Missouri plants, and also general collections from all parts of the country. The Forty-second General Assembly has appropriated funds for the erection and equipment of laboratories for practical experimental work in plant physiology and pathology, which will give facilities enjoyed by very few institutions in the country.

Climatology

Mr. HACKETT.

1a. This Course is intended more especially for Agricultural students, but is open to all. It consists of a study of the averages and extremes of temperature and rainfall in the United States; the normal relative humidity; relation of relative humidity to sensible temperature; normal cloudiness; average dates of last killing frost in spring and first in autumn, and other important climatic features.

Commercial Studies

Miss PORTER.

1. Bookkeeping. The instruction in this Course will begin with the simplest forms of business papers, continuing through account study, single and double entry bookkeeping, and concluding with a series of practical business tests. The work is continuous throughout the year and new classes will not be formed at the beginning of the second semester. *T. Th. S., at 9:30.* Elective.

Text-book: Packard's Method of Bookkeeping.

This Course counts as six hours of Industrial Work towards the Life Certificate in the Department of Education.

2. Shorthand and Typewriting.

A. Shorthand. The students will cover the principles thoroughly and have several weeks of the year to spend in letter dictation. A second year's study is necessary for the acquirement of a really satisfactory speed in writing shorthand. Elementary Course, *T. W. Th. F. S., at 8:30 and at 10:30.* Advanced Course, *M. W. F., at 9:30.*

Text-book: Munson System of Shorthand by Powers and Lyons.

B. Typewriting. Facilities for instruction are afforded on three of the leading machines, and practice of one hour each day is expected of each pupil. The touch system is taught, as practiced by expert typewrit-

ers all over the country. Every attention is given to instruction in the care of the machine as well as in the manipulation of the same. Carefully graded exercises lead up to the correct writing of letters, legal matter and tabulation. *M., at 8:30 and 1:30; M. T. W. Th. F. S., 1-6.*

The Course in Shorthand and Typewriting counts as six hours of Industrial Work towards the Life Certificate in the Department of Education.

8w. Bookkeeping and Farm Accounts. This Course deals with the elementary principles of bookkeeping and affords practice in the different forms of farm accounts, business forms, creamery and nursery accounts, etc. Short Winter Courses in Agriculture, Horticulture, and Dairying.

Dairy Husbandry

Assistant Professor ECKLES.

1b. Elements of Dairying. This Course includes two lectures and one laboratory period a week. The lectures treat of the secretion and composition of milk and the causes of variations; the Babcock test applied to milk, and other products; use of the lactometer; the various methods of cream raising, including a study of the centrifugal separators; the ripening of cream; modern methods of making and marketing butter; judging quality of butter; proper handling of milk on the farm; the relation of the factory and private dairy to the farmer. The laboratory work includes testing milk and other dairy products, separating cream and making butter. *T. Th. S., 1:30-4. Sophomore.*

2a. Factory Butter-making. This Course consists of one lecture and two laboratory periods a week. It includes a study of the modern factory systems in detail, including a careful study of testing milk and its products under varying conditions; ripening cream; use and propagation of artificial and natural starters; churning and working butter; the business management of the factory. The practical work will be along the line of the lectures, including such as will best acquaint the student with the operation of a modern factory. Hours to be arranged. Elective.

8b. Cheese-making. This Course will include five hours, two days per week, and will count as a four hour study. One hour a week of this period will be given to lectures on the methods and theories of cheese-making which will be put into practice in the laboratory. *M. W. F., 9:30-12:30 and 1:30-3:30. Elective.*

4a. Dairy Bacteriology. One hour a week will be given to lectures on the contamination of milk and its control, normal and abnormal fermentations and their relation to dairying, milk as a means of spreading disease, the relation of fermentations to butter-making and cheese-making.

and the propagation and use of pure cultures and natural starters. The laboratory work will be a study of the means by which milk becomes contaminated; the isolation and study of a number of common organisms; a careful study of the acid fermentation, ropy milk, bitter milk, and other common types; estimating number of bacteria in milk; effect of certain species on butter and cheese. *M. W. F., 1:30-3:30. Elective.*

5b. Dairy Farming. This Course covers the field of dairying in its relation to the producer rather than the manufacturer. The selection, breeding and building up of a dairy herd are considered; the proper care under different conditions; the growing of crops with the dairy as the center of the system; the use of the silo; special problems of feeding for milk-production; marketing dairy products; the use of by-products from the dairy. Hours to be arranged. Elective.

6b. Dairy Farming. The selection, breeding, and building up of a dairy herd, growing crops for the dairy, use of the silo, problems of feeding for milk production, marketing dairy products, use of by-products from the dairy. Hours to be arranged. Undergraduate and Graduate.

7a. Dairy Bacteriology. Lectures and laboratory work. Contamination of milk, normal and abnormal fermentations, and relation to dairying; use of pure cultures and starters; spread of diseases by milk. *Three times a week.* Hours to be arranged. Undergraduate and Graduate.

8. Dairy Bacteriology. This will be laboratory investigation of certain problems of bacteriology in relation to dairying, the object being chiefly to give training in methods of research in this line. The work will be adapted largely to the individual student. Graduate.

9. Investigations of unsolved problems in butter and cheese-making. This will be chiefly laboratory work and will be arranged to suit the needs of individual students. Graduate.

Facilities for Instruction and Research:

The new Dairy Building provided by the Forty-first General Assembly is a stone structure, 45 by 150 feet, two stories, with cheese-curing rooms in the basement. It contains a creamery room, 40 by 51 feet so arranged that ten power separators and churns, etc., in proportion may be operated by students at one time; a cheese room, 40 by 42 feet; a farm dairy room, 22 by 40 feet; pasteurizing, refrigerating and cold storage rooms; milk testing and research laboratories; a library and lecture rooms. New and modern equipment will be provided for all phases of the work. It is expected that this dairy will be operated throughout the year so as to insure an adequate supply of milk for instruction and research work.

A herd of nearly fifty dairy cows, consisting of registered Jerseys and Holsteins, is owned by the College.

Drawing

Mr. RODHOUSE; Mr. BRINKLEY.

1a. Agricultural Drawing. This work is arranged so as to be of special value to the farmer in designing buildings and machinery and in planning repairs on the farm. It embraces free hand drawing and shading, projections, geometric designs and constructions, working drawings, tracing, and blue printing. *T. Th. S., at 1:30.* Sophomore. Elective for Academic students who are candidates for the Life Certificate in the Department of Education.

Entomology

Professor STEDMAN.

The instruction in Entomology is given by lectures supplemented by laboratory and field work. The lectures cover the external and internal anatomy, life histories, habits, economy, and classification of insects; the characteristics of the orders, sub-orders, and principal families. Special emphasis is placed upon those insects of economic importance, and the best methods of combating their ravages. The laboratory work embraces the study, by means of actual specimens, of the internal and external anatomy, of life histories, habits, economy, breeding, identification, or determination of genera and species, and the classification of those insects found in our fauna; and also economic work and original investigation for advanced students.

The following Courses are offered:

1b. General Entomology. (1) Lectures. Internal and external anatomy, life histories, habits, economy, characteristics, classification, methods of destruction, machines and insecticides, apiculture. *M. W. F., at 10:30.* (2) Laboratory work, collecting, preserving, breeding, methods, habits, life histories, work, external anatomy, identification or determination of orders, families and genera, classification. Hours to be arranged. Junior.

2w. Economic Entomology. (For students of the Short Winter Course.) See special Catalogue to be issued in September, 1903.

3. Advanced Entomology. Lectures and laboratory work. Internal anatomy, histology, physiology, embryology, breeding, life histories, habits, economy, distribution, dimorphism, mimicry, determination of species, classification. Must be preceded by Course 1b. Hours to be arranged. Elective.

4. Graduate work in Entomology. Laboratory work. Monographing a group (scientific) ; monographing a species (scientific and economic). Must be preceded by Course 3. Hours to be arranged.

All courses in Entomology are elective for Academic and other students. Agricultural students may elect Course 3 in the Senior year, and Course 4 in the Graduate years.

Facilities for Instruction and Research:

The Entomological department occupies a portion of the first and second floors of the new Horticultural Building and has attached to the laboratories a new insectory. The laboratories are supplied with the necessary microscopes, dissecting instruments, glassware, microtomes, paraffin bath, hot oven, large and small breeding cages and jars, aquaria, spraying machines of various kinds, insecticides and reagents. In the Entomological Museum are collections of the more important injurious and beneficial insects, so arranged as to illustrate their habits of work and life histories. In addition to this collection there are several thousand species of adult insects from all orders, correctly classified and labeled, accessible to the student for reference and comparison and for illustrating lectures. Twelve current periodicals on Entomology are received and kept in the reading room with the Entomological, Horticultural and Botanical libraries, where they are accessible to students at all times.

Horticulture

Professor WHITTEN ; Mr. HOWARD ; Mr. MURRAY ; Mr. GOODMAN.

1a. Horticultural Methods. Lectures. The work consists of lectures, supplemented by required readings and practical exercises. The propagation, transplanting, cultivation, pruning, gathering and marketing of orchard fruits, together with the diseases and their treatment, are the principal topics discussed. When necessary, the lectures are given in the field, the green-house, or the propagating rooms, in order that they may be illustrated by practical object lessons. Each student is required to make cuttings and grafts, transplant, prune, etc., performing as many of the various horticultural operations as the time will permit. *M. W. F., at 8:30.* Professor WHITTEN. Sophomore.

2b. Principles of Horticulture. Lectures. The geography of fruit growing ; location with respect to markets, soil, and climatic conditions ; factors which favor or oppose successful fruit growing ; principles underlying the planting, pruning, tillage and general management of orchards ; plant growth and behavior of plants under culture ; variations, selection

and crossing with reference to the improvement of varieties; markets,—their demands and the general outlook for the development of the fruit industry. *M. W. F.*, at 8:30. Professor WHITTEN. Sophomore.

(Courses 1a and 2b are elective for students in the Department of Education who are candidates for the Life Certificate.)

3a. Small Fruits and Vegetable Gardening. Lectures, recitations and assigned readings. This Course will consist of a study of the small fruits and garden vegetables. In connection with the fruits, a study of the planting, cultivation and attention to the principal diseases, harvesting and marketing, will be made. With the vegetables, especial attention will be given to forcing and market gardening, but other features, such as fungous diseases, etc., will be duly considered. *T. Th. S.*, at 8:30. Professor WHITTEN. Junior.

4b. Origin and Development of Varieties of Cultivated Plants. Lectures and assigned readings. A discussion of the principles underlying the theory and practice of the modification and improvement of cultivated plants. *M. W. F.*, at 9:30. Professor WHITTEN. Elective.

5a. Forestry. Lectures. In this Course are considered the influence of forests on climate, soil, and flow of streams; the management of forests; the characteristics and uses of typical woods; the specific characters of our principal forest trees in their winter condition; and some of the forest geography of the country. *T. Th. S.*, at 8:30. Mr. HOWARD. Elective.

6b. Landscape Gardening. Lectures. Laying out and planting of ornamental grounds, the making of roads, lawns, flower and shrubbery borders, the consideration of trees, shrubs, and flowering plants, are the principal topics of this Course. *T. Th. S.*, at 9:30. Mr. HOWARD. Elective.

7. Special Investigation. This Course is intended for graduates and advanced students. Special topics for investigation will be assigned. Hours by appointment. Professor WHITTEN. Elective.

8w. General Horticulture. (Short Winter Course in Agriculture.) Forty lectures. Construction and management of hotbeds and cold frames; propagation of plants, including germination of seeds, making cuttings, budding, grafting, and layering; pruning and cultivating orchards and small fruits, and spraying for insects and fungous diseases; originating and improving varieties of fruits and vegetables by cross-fertilization, selection and cultivation. Professor WHITTEN.

9w. Nursery Work. Through January, in Winter Course in Horticulture. Lectures and laboratory. Twenty-four lectures on practical nursery work, embracing grafting, budding, packing for storage or shipment, growing and grading nursery stock, etc. In addition to the lectures,

twelve afternoons will be devoted to the actual work of grafting, budding, grading, packing, etc. Mr. MURRAY.

10w. Orchards and Small Fruits. Through February, in Winter Course in Horticulture. Lectures and practical exercises. Twenty-four lectures, treating of soils and localities adapted to fruit; varieties; time and manner of planting; pruning; cultivation and general treatment; harvesting and marketing fruits. Twelve afternoons will be devoted to practical work in laying out, planting and pruning orchards; and to grading and barreling apples. Mr. GOODMAN.

11w. Market Gardening and Hotbed Forcing. Twenty-four lectures, treating of the planting, growing, and marketing of the ordinary garden crops, hotbed construction; mixing soils, planting, transplanting and watering, bunching, marketing, and hotbed methods. In addition to these lectures, twelve afternoons will be devoted to practical work in growing tomatoes, asparagus, pie-plant, lettuce, radishes, etc. Through March, in Winter Course in Horticulture. Mr. HOWARD.

12w. Floriculture, Landscape Gardening, Fungous Diseases and Fungicides. Through February and March, in Winter Course in Horticulture. *Floriculture*.—Ten lectures and four practical exercises in the propagation and culture of flowers, including the making of cuttings, the mixing of soils, potting, watering, managing temperatures, germination of seeds, marketing cut flowers, etc. *Landscape Gardening*.—Ten lectures on the laying out and planting of grounds, the making of drives and walks, the planting, pruning and management of trees, shrubs and flowers. *Fungous Diseases and Fungicides*.—Twenty lectures, setting forth the nature of the destructive diseases of orchard trees, small fruits, and other plants; the cause of the various rots, blights, rusts, mildews, scabs, and other fungous diseases which prevail in our state. The nature of the attacks of these diseases upon plants, and how they spread from tree to tree and orchard to orchard will be made plain. The best means of checking their attacks by sanitary methods and by spraying will be discussed and ample practice will be given in mixing, testing and applying spraying solutions. Professor WHITTEN and Mr. HOWARD.

Facilities for Instruction and Research:

The Horticultural Grounds include 30 acres, containing a well-planted lawn with shrubbery and flower borders, collections of various kinds of small fruits and grapes, and representative varieties of stone fruits, apples, and pears. Over 1,000 varieties of orchard fruits are now growing on the grounds. Nut trees from selected stock have been put out and our native wild fruits are being collected and planted. Many kinds of vegetables are grown every year.

The New Horticultural Building provided by the Forty-first General Assembly affords class rooms, laboratories and laboratory facilities not excelled by any institution in the country. It is a stone structure 54 by 120 feet, two stories and a well lighted basement, with a plant house 16 by 50 feet and an insectory 16 by 50 feet attached. A separate plant house with apartments especially adapted to different classes of plants, and commodious propagating houses and hotbeds, afford excellent facilities for instruction in the methods of propagating and forcing plants. The library has been doubled in size in recent years and now contains the standard treatises on all phases of the subject. In the Horticultural Museum are some 700 jars of preserved fruits and vegetables which were especially prepared for illustration and instruction.

Shopwork

Mr. COOK; Mr. DUNCAN.

1. Wood-work, Forging, Pattern Making and Foundry Practice.

Wood-work: The required exercises illustrate the various joints and typical operations of carpentry and joinery, and give the student familiarity with the use of the ordinary tools.

Forging: This work includes welding, tempering, case hardening, annealing, etc., and also the study of the metallurgy of iron and steel.

Pattern Making: This includes the practical study of shrinkage, draft, parting, core prints, patterns requiring three part flasks and the different methods of construction and core work, together with the construction of patterns of different parts of machines to be finished in the machine room. All patterns are tested by the maker in sand, and where practicable are to be cast in lead. *M. W. F., 10:30-12:30. Freshman.*

4. Manual Training. This Course covers the various kinds of hand work, designed to be taught in the first six grades of the public schools, which may be given by the regular grade teacher with inexpensive equipment and material. It fulfils the requirements of the three hours of industrial work for the Life Certificate in the Department of Education and embraces: clay modeling, basketry, bent iron work, weaving, cardboard work, whittling sloyd.

(a) **Clay Modeling—Pottery:** This covers the manipulation of clay into representative forms familiar to children, with the developing into well known Indian pottery, basketry, as well as the vase forms. A china kiln for the firing of these models is provided.

(b) **Basketry:** This consists of the braiding, sewing and colling of raphia into table mats, baskets, etc., together with the weaving of reed or rattan into various useful and ornamental baskets. Colored material is employed to adapt the course to the study of color harmony.

(c) **Bent Iron Work:** This work is well adapted to the fifth and sixth grades. Such models as candlesticks, brackets, easels, picture frames, simple bridges, etc., are worked out.

(d) **Weaving:** This covers the spinning of yarn, the warping and weaving of small blankets or rugs on a hand loom constructed by the student.

(e) **Card-Board Work:** This well established Course includes exercises especially interesting and valuable to children.

(f) **Whittling Sloyd:** This covers the cutting and fashioning of thin woods into useful and ornamental shapes, and is supplemented by a limited amount of work at the bench to give the student a familiarity with the common tools. Course 4 is intended to precede Course 5, although both may be taken at the same time. *T. Th. S., 9:30-12.*

5. This Course is intended to prepare teachers for the upper grammar grades and high schools. The student receives credit for this work toward a Life Certificate. Bench work in wood, together with the care of tools, is strongly emphasized. The models are of individual interest and may consist of simple structural elements or the more complicated furniture forms such as chairs, stools, book-cases, etc. Decoration by means of color, carving, pyrography, etc., is encouraged, and a special study of stains, varnishes and paints is made. The scope and application of manual training are discussed in weekly conferences of one hour each throughout the year. Students who have not had simple mechanical drawing are urged to take either constructional freehand or mechanical drawing in connection with this Course. In addition to this work a Course of lectures on Applied Design will be offered.

6w. An elementary Course designed for students in the Short Course in Agriculture. It consists of carpentry, forging, pipefitting, sawfiling, given in such a way as to afford the broadest experience in the shortest time. *T. Th., 4-6; M. W., 4-6.*

Veterinary Science

Professor CONNAWAY; Dr. LUCKEY.

1a. The Anatomy, Physiology, and Hygiene of domesticated animals. This Course is given by lectures and laboratory work, the latter consisting of the complete dissection of one or more animals, and a comparative study of such organs as show variations in the different species. Charts, models, and prepared specimens will also be available for illustrating this study. Practical demonstrations will be given in the physiological laboratory of the more important functions of the animal body. The study of food stuffs and the action of the digestive fluids will receive special attention. *T. Th. S., 1:30-4. Junior.*

2b. **Veterinary Medicine and Surgery.** The first half of the semester is devoted to the study of the common diseases that affect the internal organs; lungs, stomach, intestines, urinary organs, etc.; the second half of the semester is given to the study of the diseases and conditions that require surgical treatment, such as lameness, wounds, abscesses, tumors, etc. A clinic is held one afternoon of each week for the treatment of the diseases discussed in the class room. In proper season instruction is given in castration, spaying, and caponizing. *T. Th. S., 1:30-4.* Junior.

3a. **Contagious, Infectious, and Parasitic Diseases.** This Course will include the study of influenza, strangles (distemper), glanders, black-leg, anthrax, tuberculosis, Texas fever, actinomycosis (lump jaw), swine plague, hog cholera, and internal and external parasitic diseases, such as tape worm in lambs, verminous bronchitis, scabies, etc. Practical exercises are given in disinfection of stables, and in preventive inoculation. Lectures on national and state quarantine regulations will be given by the State Veterinarian. *M. W. F., at 1:30.* Senior. Elective.

4. **Experimental Study of the Contagious and Infectious Diseases of farm animals,** such as tuberculosis, glanders, hog cholera, Texas fever, rabies, etc. The student will make inoculations, study and record clinical phenomena, make post-mortems, preserve the diseased tissues and study them microscopically. A study of the literature of each disease is also required. Open to graduate veterinarians, who may be interested in inspection and quarantine work; also to Agricultural and Medical students who have completed the required work in Histology, Physiology, Bacteriology and Pathology offered in the Medical Department. Graduate.

5. **Experimental Study of Veterinary Remedies.** This Course is intended for Veterinary practitioners who desire to make a study of the physiological action of medicines on the various farm animals, as well as a study of therapeutic action. Graduate.

6. **Investigation.** Students who have suitable preparation will have an opportunity to assist in the Experiment Station work. Graduate.

Household Economics

Miss ZABRISKIE.

This instruction stands for the recognition of the fact that house-keeping and home-making constitute a profession demanding systematic study.

1. **General Course.** This Course embraces one year's work and is designed for college women and others who wish to fit themselves for the management of a home on the best economic and hygienic basis.

The topics considered are: The study of food and food values; marketing; practical cooking of meats, fish, vegetables, batters, doughs, salads, croquettes, entrees and sauces, frozen desserts, etc.; preparation and serving of luncheons and dinners; cookery for invalids, and the use of the chafing dish; home sanitation, embracing the construction of a house, water supply, heating, ventilation, cleaning, disinfection, etc.; the care of the house and its furnishings, including the cleaning of silver, brasses, walls and floors, removal of stains, etc.; fundamental principles of color, form and design as applied to house decoration and furnishing; the furnishing of homes with different amounts of money. *M. W. F., 2-4.*

2. Food and Diet. Food analysis; the uses of food in the body; physical phenomena of food-preparation; relation of bacteria to food-supply; diets; dietaries. This Course must be preceded by a course in General Chemistry. Lectures and laboratory work. *Three times a week.* Hours to be arranged.

3. Advanced Cookery and Dietetics. Must be preceded by Course 1. *Three times a week.* Hours to be arranged.

Teachers Course in Household Economics. This Course comprises four years' work, and represents a detailed study of the subjects outlined below. Upon the successful completion of the Course, a Teachers' Certificate in Household Economics is granted. Students wishing to secure the degree of Bachelor of Arts, together with this Certificate may, with the approval of the instructor, take each year three additional hours' work, electing such courses as shall go toward making the required major and minors in the Academic Department. (See Pages 67-68.)

No. of Course.	Subject.	Semester.		Hours.
		I.	II.	
<i>Freshman Year.</i>				
Chem. 2....	Chemistry	8	3	M. W. F., 9:30; Lab. —
Zool. 1... ..	General Biology.	8	3	Lect. F., 11:30; Lab. —
Eng. 1....	Composition and Rhetoric	8	8	M. W. F., 8:30.
Bot. 1	Botany.....	8	0	M. W. F., 1:30-4.
Physiol. 1b.	Elementary Physiology...	0	8	T. Th. S., 8:30.
	Sewing.....			To be arranged.
<i>Sophomore Year.</i>				
Chem. 8 or 5	Chemistry ..	8	3	To be arranged.
Physics. 1..	General Physics.....	8	3	Lect. W. F., 9:30; Lab. —
German 1..	Beginning German.....	8	8	M. W. F., 10:30.
Hist. 1.....	General History.....	8	8	T. Th. S., 10:30.
H. E. 1.....	General Course.....	3	8	M. W. F., 2-4.

No. of Course.	Subject.	Semester.		Hours.
		I.	II.	
<i>Junior Year.</i>				
Bac. 1a	Bacteriology.....	8	0	T. Th. S., 8:30.
	Elective	0	8	
German 2..	Reading and Composition	8	8	M. W. F., 9:30.
Econ. 1....	Elementary Economics...	3	3	M. W. F., 3.
Education 1	Hist. of Education.....	8	8	M. W. F., 10:30.
H. E. 8 ...	Advanced Cookery.....	3	3	To be arranged.
<i>Senior Year.</i>				
Sociology 1	Elementary Sociology....	8	8	M. W. F., 9:30.
Education 2	Science of Education.....	8	8	T. Th. S., 3.
H. E. 2	Food and Diet.....	8	8	To be arranged.
H. E.....	Practice Teaching.....			To be arranged.
	Elective	6	6	

B. THE AGRICULTURAL EXPERIMENT STATION.

BOARD OF CONTROL:

The Curators of the University of Missouri.

ADVISORY COUNCIL:

The Missouri State Board of Agriculture.

OFFICERS OF THE STATION.

R. H. JESSE, LL. D.President of the University
H. J. WATERS, B. S. A.Director
†PAUL SCHWEITZER, Ph. D.....Chemist
J. C. WHITTEN, M. S., Ph. D.Horticulturist
J. M. STEDMAN, B S.Entomologist
J. W. CONNAWAY, D. V. S., M. D.Veterinarian
F. B. MUMFORD, B. S., M. S.Animal Breeding
B. M. DUGGAR, A. M., Ph. D.Botany
R. M. BIRD, A. M., Ph. D.Acting Chemist
C. H. ECKLES, B. Agr., M. S.Dairy Husbandry
GEO. M. TUCKER, A. M., Ph. D.Agronomy
W. L. HOWARD, B. S.Assistant in Horticulture
E. L. SHAW, B. S.Assistant in Agriculture

†Absent during session of 1902-3.

M. HARPER, M. S.	Assistant in Feeding
E. H. FAVOR, A. B.	Assistant in Botany
*A. E. HACKETT	Section Director Missouri Weather Service
JOHN SCHNABEL	Gardener
J. G. BABB, A. M.	Secretary
R. B. PRICE	Treasurer
ESTELLE HICKOK	Clerk

This Station was established by the act of Congress of 1887, and by the acts of the General Assembly of Missouri accepting its provisions. By an order of the Board of Curators of the University it was made a division of the College of Agriculture.

The special function of the Experiment Station is to conduct original research in the various branches of Agriculture. At this time investigations are in progress relating to the maintenance of soil fertility, the renovation of worn out soil, the most efficacious rotation of crops, the adaptability of new plants to Missouri's soil and climate, the most economical methods of beef and pork production; dairying and dairy feeding, animal diseases, their origin and prevention or cure; animal and plant breeding; the propagation, selection, breeding and improvement of fruits and vegetables; tests of varieties of orchard and small fruits; insect pests, fungous diseases, etc.

The Station uses such parts of the College Farm, Horticultural Grounds and the equipments of the College and University as are needed for its investigations. The results of these investigations are published in the form of Bulletins and Annual Reports which are distributed free to all who express a desire to have them.

The Station is provided with an outfit of meteorological instruments, and daily observations are made by an officer of the United States Weather Bureau.

C. SCHOOL OF ENGINEERING.

Requirements for Admission:

For information in regard to requirements for admission see pages 32-38.

Tuition Charges and Fees:

For information in regard to tuition charges, fees, scholarships, etc., see pages 46-47.

Degrees:

The five Courses offered below lead respectively to the degrees of Bachelor of Science in Civil Engineering, Bachelor of Science in Elec-

*In the service of the U. S. Government.

trical Engineering, Bachelor of Science in Mechanical Engineering, Bachelor of Science in Sanitary Engineering and Bachelor of Science in Chemical Engineering.

The degrees of Civil Engineer (C. E.), Electrical Engineer (E. E.), and Mechanical Engineer (M. E.), will be conferred on candidates who, after receiving the first degree from this University or one of equivalent standing, have spent in the same course one year (at least ten hours a week) in graduate work in the University, or two years in professional practice and in graduate work *in absentia*. The candidate must pass an examination on his graduate work and present a satisfactory thesis. The thesis subject shall be presented to the Committee on Graduate Degrees on or before Nov. 1, and the thesis shall be presented to the same Committee on or before May 1, of the given year. Those who with professional practice pursue graduate work *in absentia* must be regularly enrolled as graduate students paying the usual fees.

COURSES OF INSTRUCTION IN ENGINEERING.

Civil Engineering

The field covered by this Course is a very wide one, embracing topographical, railway, hydraulic, structural, municipal, and sanitary engineering and it is the aim to give a broad general training which may later serve as a foundation for the development of any of the special lines of practice included under the general term, Civil Engineering.

The Course has, therefore, been arranged with the purpose of providing thorough training in those fundamental sciences and principles upon which the practice of the civil engineer is based, and also, in so far as practicable, of giving instruction in the special subjects which underlie the several branches.

For tabulated statement of the Course in Civil Engineering, see next page.

No. Course.	Subject.	Semester.		Hours.
		I.	II.	
Freshman Year.				
English 1..	Composition and Rhetoric	8	8	I. M. W. F., 8:30; II. T. Th. S., 8:30.
Math. 1....	Trig., Solid Geometry and Anal. Geom.	8	8	I. T. Th. S., 11:30; II. M. W. F., 11:30.
Math. 2....	Algebra	8	...	I. T. Th. S., 10:30; II. M. W. F., 10:30.
Drawing 1.	Descriptive Geometry....	8	8	I. T. Th. S., 1:30-4; II. T. Th. S., 9:30-12; III. M.W.F., 1:30-4.
Shopwork 1	Woodwork and Forging..	8	8	I. M. W. F., 1:30-4; II. T. Th. S., 8-5:30; III. T. Th. S., 1:30-4.
Chem. 2...	Gen. Inorganic Chemistry	8	8	Lect. M. W. F., 9:30; Lab. I. M. W. F., 10:30-12; II. T. Th. S., 1:30-3; III. T. Th. S., 8:30-10.
C. E. 1.....	Elementary Surveying....	....	8	I. T. Th. S., 8:30-11; II. M. W. F., 1:30-4; III. T. Th. S., 1:30-4.
Sophomore Year.				
Math. 16...	Anal. Geom. and Cal.....	6	6	Daily, 8:30.
Drawing 2.	Machine Drawing.....	8	8	M. W. F., 1:30-4.
C. E. 2.....	Higher Surveying.....	8	....	I. M. W. F., 9:30-12; II. T. Th. S., 2:30-5.
C. E. 4.....	Railway Surveying.....	....	8	I. M. W. F., 9:30-12; II. T. Th. S., 2:30-5.
Physics 8...	General Physics.....	6	6	Lect. T. Th., 1:30; Rec. I. T. Th. 9:30; II. M. W., 9:30; Lab. I. T. Th., 2:30-5; II. W. S., 9:30-12.
Junior Year.				
Mech. 8....	Mechanics of Engineering	5	5	Lect. W. F., 8:30; Rec. I. T. Th. S., 8:30; II. T. Th. S., 9:30.
C. E. 6.....	Construction.....	8	8	M. W., 11:30, F., 9:30-12.
C. E. 7.....	Municipal Engineering...	2	2	T. Th., 11:30.
C. E. 5.....	Railway Engineering....	3	....	M. W. F., 1:30-4.
C. E. 10 ...	Framed Structures.....	2	2	M., 8:30-11:30, W., 9:30-11:30.
Astr. 5b....	Spherical and Practical Astronomy.....	....	8	T. Th., 10:30, Observatory hours to be arranged.
Senior Year.				
M. E. 1....	Steam Engineering.....	8	....	M. W. F., 9:30.
M. E. 11...	Mechanical Laboratory...	....	1	F., 1:30-4.
M. E. 7....	Hydraulic Motors.....	2	....	T. Th., 9:30.
C. E. 16....	Specifications and Contracts.....	....	1	S., 9:30.
C. E. 18....	Masonry Structures.....	...	2	T. Th., 1:30-4.
C. E. 11....	Bridge Design.....	8	8	M. W. F., 1:30-4.
C. E. 8.....	Geodetic Surveying.....	8	....	Lect. T. Th., 8:30; Field, S., 8:30-11:30.
C. E. 14....	Engineering Laboratory..	1	....	I. T., 1:30-4; II. Th. 1:30-4.
C. E. 12....	Theory of Structures.....	....	2	M. W., 11:30.
C. E. 9.....	Hydraulics .....	....	8	M. W. F., 10:30.
		8	8	
	Elective	to	to	
		6	6	

Electrical Engineering

This Course fits students for electrical designing, manufacturing, contracting, and for the installation and management of light and power stations; in short, it is a thorough, broad training for Electrical Engineers.

The first two years are devoted to preliminary training in the languages, mathematics, the sciences, and in drawing and shopwork. The technical work comes in the last two years and consists of the theory and principles of electricity and magnetism; electrical measurements; calibration of instruments; tests of all kinds; design and construction; study of special problems in the generation, transmission, and distribution of electrical energy.

Special attention is paid to alternating current phenomena.

Instruction is given by means of recitations, lectures, and laboratory work, thoroughly correlated and arranged.

The apparatus is new, from the best makers, and includes instruments for electrical measurements of precision, a storage battery conveniently arranged for testing, an electric light plant, various types and sizes of direct and alternating current dynamos and motors, measuring instruments, etc. The equipment has been more than doubled during the past year.

For tabulated statement of the Course in Electrical Engineering, see the next page.

No. Course.	Subject.	Semester.		Hours.
		I.	II.	
Freshman Year.				
Math. 1....	Trig., Solid Geom. and An. Geom	3	3	I. T. Th. S., 11:30; II. M. W. F., 11:30.
Math. 2 ...	Advanced Algebra.....	3	....	I. T. Th. S., 10:30; II. M. W. F., 10:30.
C. E. 1....	Surveying.....	....	3	I. T. Th. S., 8:30; II. M. W. F., 1:30; III. T. Th. S., 1:30-4.
English 1..	Composition and Rhetoric	3	3	I. M. W. F., 8:30; II. T. Th. S., 8:30.
Chem. 2 ..	General Inorganic Chem..	3	3	{ I. and II. M. W. F., 9:30. I. M. W. F., 10:30; II. T. Th. S., 1:30.
Drawing 1.	Descriptive Geometry....	3	3	I. M. W. F., 1:30; II. T. Th. S., 9:30; III. T. Th. S., 1:30-4.
Shopwork 1	Woodwork and Forging..	3	3	I. T. Th. S., 3-5; II. M. W. F., 1:30-4; III. T. Th. S., 1:30.
Sophomore Year.				
Mat. 16	Analytical Geometry and Calculus.....	6	6	Daily, 8:30.
Physics 3 ..	General Physics.....	6	6	Lect. T. Th., 1:30; Rec. M. W., 9:30, M. W., 10:30, T. Th., 9:30, T. Th., 10:30; Lab. W. S., 9:30, T. Th., 2:30, M. F., 1:30. W. S., 1:30.
Drawing 2.	El. of Machine Drawing..	1	1	I. M. W. F., 9:30; II. M. W. F., 1:30.
Shopwork 2	Machine Work..	2	2	I. M. F., 1:30; II. T. Th., 2:30.
M. E. 1....	Steam Engineering.....	3	...	T. Th. S., 9:30 or 11:30.
M. E. 2....	Kinematics.....	....	3	T. Th. S., 9:30 or 11:30.
Junior Year.				
Mech. 3 ...	Mechanics of Engineering	5	5	{ I. and II. W. F., 8:30. I. T. Th. S., 8:30. II. M. W. F., 9:30.
Physics 4 ..	Electrical Measurements..	3	3	M. W. F., 1:30-4.
E. E. 1....	Electrical Machinery.. ..	3	3	T. Th. S., 1:30-4.
E. E. 2	Alternating Currents.....	3	3	T. Th. S., 11:30.
E. E. 3	Seminary.....	1	1	W., 4.
Senior Year.				
E. E. 4....	Electrical Design.....	3	3	M. W. F., 8:30-11.
E. E. 3....	Alternating Currents.....	3	3	M. W. F., 1:30-4.
E. E. 5....	Electrical Transmission, Distribution	3	3	M. W. F., 11:30.
E. E. 6....	Seminary.....	2	2	W. F., 4.
E. E. 9....	Thesis.....	...	2	T. Th., 8:30-11.
M. E. 7	Hydraulic Motors.....	2	....	T. Th., 9:30.
M. E. 13...	Mechanical Laboratory...	2	2	T., 1:30-6.

Mechanical Engineering

This Course, of four years, is intended to fit students to enter readily any of the principal divisions of Mechanical Engineering. The aim of the work is to make the student self-reliant and to that end he is required to solve original problems in design and in the laboratory, and to arrange, set up and adjust the apparatus used in his experiments. He is trained in the underlying principles of the profession, all work being so arranged that the application of these principles to special problems, which may arise in practice, may be clearly seen. The design of engineering structures and machines and the development, application and measurement of power in its various forms are covered in the different courses. The instruction is carried on principally by the aid of text-books and laboratory work, lectures being used only to supplement the text-book. In the class room definite problems are given for solution, which problems in most cases are taken from practice. The department is equipped with an excellent working library of technical books and the reading room is supplied with the best Engineering magazines. The new Engineering laboratory has been equipped with steam, gas and oil engines, pumps, injectors, air compressors, fan blowers, turbines, hoisting appliances and apparatus for testing these and standardizing instruments. This apparatus will familiarize the student with the use and care of these machines as well as with the theoretical principles underlying their design, construction and use. In equipping the laboratory it has been the aim to select the apparatus so as to bring the student in contact with most of the modern forms or types of machines for developing and measuring power and to have him make most of the tests which a Mechanical Engineer is called upon to make as well as to develop the ability to attempt original investigations or tests. The Power Plant of the University is used at times by the students for the purpose of making tests.

The outline of the courses given below shows the division of the work and the description of the courses gives the main features of each. The first two years are mainly preparatory, instruction being given in English, Mathematics, Physics, Chemistry, Drawing and Shopwork to prepare the student for the technical work of the last two years. In the last years the work is mainly in this department, certain allied work being given by the departments of Civil and Electrical Engineering.

Hours.

W. F., 8:30; II. T. Th. S.

Th. S., 11:30; II. M. W. F.,

Th. S., 10:30; II. M. W. F.,

Th. S., 1:30-4; II. T. Th.

9:30-12; III M. W. F., 1:30-4.

W. F., 1:30-4; II. T. Th. S.,

10:30-12; III M. W. F., 4-6.

Th. S., 8:30-10; II. M. W. F.,

8:30-11; II. M. W. F.,

8:30-11; II. M. W. F.,

8:30-11; II. M. W. F.,

8:30-11; II. M. W. F.,

8:30-11; II. M. W. F.,

8:30-11; II. M. W. F.,

8:30-11; II. M. W. F.,

8:30-11; II. M. W. F.,

8:30-11; II. M. W. F.,

8:30-11; II. M. W. F.,

8:30-11; II. M. W. F.,

8:30-11; II. M. W. F.,

8:30-11; II. M. W. F.,

8:30-11; II. M. W. F.,

8:30-11; II. M. W. F.,

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8:30-11; II. M. W. F.,

8:30-11; II. M. W. F.,

8:30-11; II. M. W. F.,

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8:30-11; II. M. W. F.,

8:30-11; II. M. W. F.,

8:30-11; II. M. W. F.,

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8:30-11; II. M. W. F.,

8:30-11; II. M. W. F.,

8:30-11; II. M. W. F.,

8:30-11; II. M. W. F.,

8:30-11; II. M. W. F.,

Sanitary Engineering

This Course is arranged with the puprose of combining a study of the principles of sanitary science, with the fundamental training of the Course in Civil Engineering.

The Freshman and Sophomore years are identical with those of the Course in Civil Engineering (p. 161). In the two later years, the work in structural and railway engineering is reduced and more attention is given to Sanitary Engineering. Thorough courses are arranged in those sciences which immediately underlie this particular branch, Bacteriology, Chemistry and Hygiene, and special instruction is given in building and municipal sanitation, sewage disposal and water purification.

No. Course.	Subject.	Semester.		Hours.
		I	II	
Junior Year.				
Mech. 8...	Mechanics of Engineering	5	5	Lect. W. F., 8:30; Rec. I. T. Th. S., 8:30; II. T. Th. S., 9:30.
C. E. 6.....	Construction	3	3	M. W., 11:30, F. 9:30-12.
C. E. 7.....	Municipal Engineering..	2	2	T. Th., 11:30.
Chem. 12...	Technical Chemistry.....	3	3	
C. E. 10....	Framed Structures.....	2	2	M., 8:30-11:30, W., 9:30-11:30.
Senior Year.				
M. E. 1.....	Steam Engineering.....	3	....	M. W. F., 9:30.
M. E. 11....	Mechanical Laboratory...	...	1	F., 1:30-4.
Hygiene...	Hygiene .....	...	3	
Bact.....	General Bacteriology.....	3	....
C. E. 11....	Bridge Design.	3	3	M. W. F., 1:30-4.
C. E. 9.....	Hydraulics.....	...	3	M. W. F., 10:30.
C. E. 16....	Specifications and Con- tracts.....	....	1	S., 9:30.
C. E. 13....	Masonry Structures....	....	2	T. Th., 1:30-4.
C. E. 8.....	Sanitary Engineering.....	3	3	T. Th. S., 10:30.
C. E. 14....	Engineering Laboratory..	1	...	S., 9:30-12.
M. E. 7....	Hydraulic Motors.....	2	....	T. Th., 9:30.

Chemical Engineering

In view of the development of the applications of Chemistry on a large scale such as in the manufacture of paints, dyes, soaps, starch, sugar, leather, paper, spirits, drugs, chemicals, abrasives, glue, cements, mortars, illuminants, explosives and other articles too numerous to mention, this Course is offered to furnish training in Engineering together with specialization in Chemistry. It is proposed to extend the Course making it more general on the Engineering side or to offer several parallel courses as the demands require.

SUBJECT.		SEMESTER.	
<i>Freshman Year.</i>		I.	II.
English		3	3
Solid Geom., Trig. and Analytic Geom.		3	3
General Chemistry		3	3
Geology		3	3
Descr. Geom.		3	3
<i>Sophomore Year.</i>			
Physics		6	6
An. Geom.		3	0
Calculus		0	3
Organ. Chemistry		3	3
Qual. Analysis		3	3
Drawing		3	3
<i>Junior Year.</i>			
Calculus		3	3
Mechanics		3	3
Tech. Chemistry		3	3
Electr. Measurements		3	3
Electr. Machinery		3	3
<i>Senior Year.</i>			
Tech. Chemistry		3	3
Alt. Currents		6	6
Applied Electro-Chem.		0	3
Hydraulics		3	3

Hydraulic Engineering

This Course is identical during the first three years with the Course in Civil Engineering and leads to the same degree. During the Senior Year it differs from the Course in Civil Engineering in requiring less structural work and devoting more attention to Hydraulic, Irrigation and Sanitary Engineering.

No. Course.	Subject.	Semester.		Hours.
		I.	II.	
Senior Year.				
M. E. 1....	Steam Engineering.....	3	....	M. W. F., 9:30.
M. E. 11...	Mechanical Laboratory...	...	1	F., 1:30-4.
M. E. 7....	Hydraulic Motors ..	2	....	T. Th., 9:30.
C. E. 16....	Specifications and Con- tracts .....	....	1	S., 9:30.
C. E. 13....	Masonry Structures.....	....	2	T. Th., 1:30-4.
C. E. 11....	Bridge Design.....	3	3	M. W. F., 1:30-4.
C. E. 8. ...	Geodetic Surveying	3	....	Lect. T. Th., 8:30; Field, S., 8:30-11:30.
C. E. 14 ...	Engineering Laboratory..	1	....	I. T., 1:30-4; II. Th., 1:30-4.
C. E. 9.....	Hydraulics..	....	3	M. W. F., 10:30.
M. E. 8....	Pumping Machinery.....	....	2	T. Th., 9:30.
C. E. 15....	Irrigation Engineering...	3	....	M. W. F., 10:30.
C. E. 8...	Sanitary Engineering.....	....	3	T. Th. S., 10:30.

ENGINEERING COURSES IN DETAIL.

Civil Engineering

Professor SPALDING; Mr. WILLIAMS.

1. Elementary Surveying. Use and adjustment of ordinary surveying instruments. Methods employed in land and topographical surveying. *Second Semester*, M. W. F., 1:30-4; T. Th. S., 8:30-11; T. Th. S., 1:30-4. Mr. WILLIAMS.

2. Higher Surveying. City, topographical, mining, and hydrographic surveying. *First Semester*, M. W. F., 9:30-12; T. Th. S., 2:30-5. Mr. WILLIAMS.

3. Geodetic Surveying. Elements of Geodesy with practice in use of precise instruments and reduction of triangulation. Precise level work. Determinations of azimuth. *First Semester*, Lecture, T. Th., at 8:30; Field, S., 8:30-11:30. Mr. WILLIAMS.

4. Railway Location. Theory and practice of railroad surveying, including the field location and complete estimate for a short line of railway. *Second Semester*, M. W. F., 9:30-12; T. Th. S., 2:30-5. Mr. WILLIAMS.

5. Railway Engineering. Track construction; railway structures; railway economics. *First Semester*, M. W. F., 1:30-4. Mr. WILLIAMS.

6. Construction. Materials and methods employed in engineering construction; stone; brick; cement; timber; iron, and steel; masonry construction; foundations; stereotomy of masonry structures; testing materials. *Both Semesters*, M. W., 11:30; F., 9:30-12. Professor SPALDING.

7. Municipal Engineering. Discussion of general problems of municipal public works, with more detailed study of water supply and sewerage. *Both Semesters, T. Th., 11:30.* Professor SPALDING.

8. Sanitary Engineering. Sewage disposal, water purification and general sanitation. *Second Semester, T. Th. S., 10:30.* Professor SPALDING.

9. Hydraulics. Water distribution, reservoirs, conduits, pipe lines, water-towers and stand-pipes. *Second Semester, M. W. F., 10:30.* Professor SPALDING.

10. Framed Structures. Analysis of simple trusses. Graphic statics. Design for small roof truss. *Both Semesters, M., 8:30-11:30; W., 9:30-11:30.*

11. Bridge Design. Design for plate girder bridge and steel railway bridge of short span, with working drawings and estimates. *Both Semesters, M. W. F., 1:30-4.*

12. Theory of Structures. Swing bridges, arches, suspension and cantilever bridges, deflection of trusses. *Second Semester, M. W., 11:30.*

13. Masonry Structures. Theory of masonry structures with design and estimate for masonry or concrete arch. *Second Semester, T. Th., 1:30-4.* Professor SPALDING.

14. Engineering Laboratory. Testing materials. *First Semester, Section I, T., 1:30-4; Section II, Th. 1:30-4.* Professor SPALDING.

15. Irrigation Engineering. The institutions and practice of irrigation; discussion of the special problems arising in irrigation work. *First Semester, M. W. F., 10:30.* Professor SPALDING.

16. Specifications and Contracts. *Second Semester, S., 9:30.* Professor SPALDING.

17. Advanced Geodesy. *Second Semester, T. Th. S., 9:30.* Mr. WILLIAMS.

18. Graphic Statics. Graphical analysis of framed structures, with design for simple roof truss and plate girder. *Second Semester, W., 11:30; F., at 1:30-4.*

Course 1 is required of all Freshmen in Engineering. Courses 2, 4, 6, 7, 9, 10, 11, 13, 14, and 16 are required of students in Civil and Sanitary Engineering.

Courses 3, 5 and 12 are required of students in Civil Engineering. Course 8 is required of Seniors in Sanitary Engineering.

Course 18 is required of Juniors in Mechanical Engineering.

Courses 3, 15 and 17 are elective for Seniors in Civil Engineering.

Electrical Engineering

Professor SHAW.

1. **Electrical Machinery.** Theory, construction, and operation of continuous current generators, motors, measuring instruments and accessories. Laboratory: characteristics, efficiencies, heating tests, diseases and remedies. *Both Semesters, T. Th. S., 1:30-4.*

2. **Alternating Currents.** Alternating current phenomena. Theory of current flow. Single and multiphase generators, motors, transformers, and instruments. *Both semesters, T. Th. S., at 9:30.*

3. **Alternating Currents.** A continuation of Course 2 with laboratory tests as to operation, regulation, efficiency, etc. *Both Semesters, M. W. F., 1:30-4.*

4. **Electrical Design.** The design of electrical apparatus, including generators, motors, rheostats, transformers, and switchboards. *Both Semesters, T. Th. S., 8:30-11.*

5. **Electrical Transmission and Distribution.** Study of details of lighting, power, and transmission systems, including street railways, with regard to estimates and specifications, selection and arrangement of machinery, installation, testing, and management. *Both Semesters, M. W. F., at 11:30.*

6. **Telephony and Telegraphy.** Instruments and systems. Lines and their properties with special reference to effects of inductance and capacity. Wireless telegraphy. Hours to be arranged.

7. **Advanced Alternating Currents.** With special reference to Long Distance Transmission. Hours to be arranged.

8. **Seminary.** Discussion of current technical literature. A local section of the American Institute of Electrical Engineers has been established here, and work for the same will constitute part of the Course. *Both Semesters, Juniors, W., 4; Seniors, W. F., 4.*

9. **Thesis.** Original investigations, and presentation of results in the form of a final thesis. *Second Semester, T. Th., 9:30-11.*

Courses 1, 2, and 3 are required of Juniors in Electrical Engineering; 3, 4, 5, 8 and 9 of Seniors.

Course 1 is required of Juniors in Mechanical Engineering and of Juniors in Sanitary Engineering; 2 of Seniors in Mechanical Engineering.

Courses 6 and 7 are elective for such Engineering students as are prepared for them, usually Graduates.

Mechanical Engineering

Professor GREENE; Mr. HODSDON.

1. Steam Engineering. Fuels, boilers, engines and accessories. An elementary descriptive course intended to give the student the names, purposes, construction and operation of the various parts of the apparatus found in a steam power plant. *First Semester, T. Th. S., 9:30; T. Th. S., 11:30. Mr. HODSDON.*

2. Kinematics. Elementary mechanisms: pulleys, belts, link work, gearing, cams. *Second Semester, T. Th. S., 9:30; T. Th. S., 11:30. Mr. HODSDON.*

3. Steam Boilers. Value of fuels, determination of the sizes of grates, heating surface, stays, chimneys for a given boiler. Types of boilers for various purposes, methods of testing boilers. Boiler room accessories. Design of a boiler house. Each student is required to make a working drawing of a boiler designed by him. This Course must be preceded or taken co-ordinately with Mech. 3. *First Semesters, M. W., 9:30; F., 9:30-12. Second Semester, F., 9:30-12. Mr. HODSDON.*

4. Thermodynamics. Mechanical theory of heat. Cycles and their analyses. *Second Semester, T. Th. S., 10:30. Professor GREENE.*

5. Heat Engines. The application of thermodynamics to the various forms of heat engines, air compressors, and refrigerating machines. Form of plants using such apparatus. Discussion of tests, installation and maintenance. This Course must be preceded by Course 4. *First Semester, T. Th. S., 10:30. Professor GREENE.*

6. Steam Engine Design. The determination of the sizes of the parts of a steam engine to develop a given power. Discussions of vibrations, fly wheels, balancing, transmission of power by belts, ropes and gears, steam piping, shafts. Each student is required to make freehand sketches of the various parts of the complete engine as designed by him. Must be preceded by Mech. 3 and M. E. 1 and 2. *First Semester, M. W. F., 8:30-10:30; Second Semester, W. F., 8:30-10:30. Professor GREENE.*

7. Hydraulic Motors. The theory of the action of turbines, measurement of power, discussion of experiments, design of wheels for specific duty. Must be preceded by Mech. 3. *First Semester, T. Th., 9:30. Professor GREENE.*

8. Pumping Machinery. The design of pumps for waterworks and power transmission. Hydraulic presses and machinery. Pipe lines. Plants. *Second Semester, T. Th., 9:30. Professor GREENE.*

9. Machine Design. Design of special machinery. Continuation of work in mechanical drawing and engineering mechanics. The student is

required to design a machine tool, crane, pump, girder, or some similar engineering structure and make finished working drawings of the same. Must be preceded by Drawing 1 and 2 and Mech. 3. *T. Th.*, 1:30-4. Professor GREENE.

10. Heating and Ventilating. The arrangement and design of systems for heating and ventilating buildings. Application to a specific building. Elective for Seniors. *First Semester, T. Th.*, 8:30. Professor GREENE.

11. Mechanical Laboratory. The calibration and adjustment of instruments, measurement of leverages, determination of the efficiency of machines, tests of materials of engineering, measurement of power, hydraulic measurements, valve setting, coal and gas calorimetry. *W.*, 1:30-4. Mr. HODSDON.

12. Mechanical Laboratory. Testing boilers, engines, pumps, turbines, injectors, air compressor, and refrigerating machinery for efficiency and duty. Studies in generation, transmission and application of power. Heating and ventilating. Calorimetry, *First Semester, M. F.*, 1:30-4; *Second Semester, F.*, 1:30-4. Professor GREENE.

13. Mechanical Laboratory. A Course for electrical engineers. Calibration of instruments and tests of engines, pumps, turbines and boilers for efficiency and duty. *T.*, 1:30-6. Mr. HODSDON.

14. Graphics of Machines. Graphical analysis of machines. Moment diagrams for shafts; friction of axles, gears, screws. *First Semester, M.*, 1:30. Professor GREENE.

15. Plants and Processes. A Course in the layout, and arrangement of plants for different engineering works. Engineering manufacturing processes. Elective for Juniors and Seniors. *First Semester, W. F.*, 10:30. Professor GREENE.

16. Valve Gears. A study of the various forms of gears and their design, using the Zenner and Belgram diagrams. Elective for Juniors and Seniors. *First Semester, M.*, 10:30. Mr. HODSDON.

17. Marine Engineering. A study of the marine engine and boiler together with the auxiliary machinery used on shipboard. Elective for Juniors and Seniors. Given in alternate years, beginning 1904-5. *S.*, 8:30. Professor GREENE.

18. Naval Architecture. Buoyancy, stability, metacentric heights, weights, curves, strength, propulsion and steering. Elective for Juniors and Seniors. Given in alternate years, beginning 1903-4. *S.*, 8:30. Professor GREENE.

19. Thesis. An original investigation of an engineering problem. *Second Semester, M.*, 8:30-12:30, 1:30-4. Professor GREENE.

20. Technical Literature. Reports on reading of technical magazines. *Once a week.*

Students in Civil and Electrical Engineering with the required training may elect any of the above courses with the consent of the head of the department in which they are working.

Mechanics

Professor DEFOE.

1. Elementary Mechanics. Statics and dynamics. *Both Semesters, M. W. F., at 10:30.*

3. Mechanics of Engineering. Statics, dynamics, strength of materials, hydrostatics and hydrodynamics. *Both semesters, Lectures, W. F., at 8:30; Recitations, Section I, T. Th. S., at 8:30; Section II, T. Th. S., at 9:30.*

4. Elasticity. Mathematical theory of elasticity. *Both Semesters, T. Th. S., at 10:30.*

7. Problems in Mechanics. Dynamics of a rigid body. *Both Semesters, M. W. F., at 11:30.*

Shopwork

Mr. COOK; Mr. DUNCAN.

The various Courses are arranged so as to give the student a knowledge of tools and machines without unnecessary repetition of processes. As far as possible the exercises are designed to have some personal or commercial value and become the property of the student making them. Theoretical instruction is given by means of lectures and frequent quizzes, and considerable outside reading is required. The practical work is done in the well equipped shops. Examinations on the work are required at frequent intervals.

1. Wood-work, Forging, Pattern-making and Foundry Practice.

Woodwork: The required exercises illustrate the various joints and typical operations of carpentry and joinery, and give the student familiarity with the use of the ordinary tools.

Forging: This work includes welding, tempering, case hardening, annealing, etc., and also some study of the metallurgy of iron and steel.

Pattern-making: This includes the practical study of shrinkage, draft, parting, core prints, patterns requiring three part flasks, and the different methods of construction and core work, together with the construction of patterns of different parts of machines to be finished in the machine room. All patterns are tested by the maker in sand, and where practicable are to be cast in lead.

Foundry Practice: This work consists of the study of modern foundry methods and the practical application of the same.

Section I, *M. W. F.*, 1:30-4; Section II, *T. Th. S.*, 1:30-4; Section III, *First Semester*, 3-5:30; *Second Semester*, 10-12:30.

2. **Machine Work.** The aim of this Course is to give the student an acquaintance with the approved methods of machine construction and of modern machine shop practice. Chipping, filing and fitting, as well as the assembling of small machines, are carefully supervised and graded. *M. W.*, 1:30-4; *T. Th.*, 2:30-5; *M. W.*, 9:30-12. Sophomore.

3. **Advanced Machine Work.** This Course is intended for students who desire to specialize in this work and require more experience than Course 2 will give. *T. Th. S.*, 9:30-12.

4. **Manual Training.** This Course covers the various kinds of hand work designed to be taught in the first six grades of the public schools, which may be given by the regular grade teacher with inexpensive equipment and material. It fulfills the requirements of three hours of Industrial Work for the Life Certificate in the Department of Education and embraces clay modeling, basketry, bent iron work, weaving, card-board work, whittling sloyd.

(a) **Clay Modeling—Pottery:** This covers the manipulation of clay into representative forms familiar to children, with the developing into well known Indian pottery forms, as well as the vase forms. A china kiln for the firing of these models is provided.

(b) **Basketry:** This consists of the braiding, sewing and colling of raphia into table mats, baskets, etc., together with the weaving of reed or rattan into various useful and ornamental baskets. Colored material is employed to adapt the Course to the study of color harmony.

(c) **Bent Iron Work:** This work is well adapted to the fifth or sixth grades. Such models as candlesticks, brackets, easels, picture frames, simple bridges, etc., are worked out.

(d) **Weaving:** This covers the spinning of yarn, the warping and weaving of small blankets or rugs on a hand loom constructed by the student.

(e) **Card-Board Work:** This well established Course includes exercises especially interesting and valuable to children.

(f) **Whittling Sloyd:** This covers the cutting and fashioning of thin woods into useful and ornamental shapes, and is supplemented by a limited amount of work at the bench to give the student a familiarity with the common tools. Course 4 is intended to precede Course 5, although both may be taken at the same time. *T. Th. S.*, 9:30-12.

5. This Course is intended to prepare teachers for the upper gram-

mar grades and high schools. The student receives credit for this work toward a Life Certificate. Bench work in wood, together with the care of tools is strongly emphasized. The models are of individual interest and may consist of simple structural elements or the more complicated furniture forms such as chairs, stools, book-cases, etc. Decoration by means of color, carving, pyrography, etc., is encouraged, and a special study of stains, varnishes and paints is made. The scope and application of manual training are discussed in weekly conferences of one hour each throughout the year. Students who have not had simple mechanical drawing are urged to take either constructional, freehand or mechanical drawing in connection with this Course. In addition to this work a Course of lectures on Applied Design will be offered. *M. W. F., 9:30-12.*

Drawing

Mr. RODHOUSE; Mr. CRAIG; Mr. BRINKLEY.

Instruction is given to all regular Engineering students in the principles of geometrical and mechanical drawing and in freehand sketching. A large amount of time is devoted to practice in the drawing-room to enable the student to acquire the skill necessary for his future work. Drawing is continued also in connection with the student's professional studies.

1. Descriptive Geometry. Orthographic projections, problems relating to points, lines, and planes, preceded by a short course in elementary mechanical lettering and plain freehand lettering. Representation of surfaces, their tangencies, intersections and developments. Shades and shadows. Isometric, cabinet, and perspective views. Section I, *T. Th. S., 9:30-12*; Section II, *M. W. F., 1:30-4*; Section III, *T. Th. S., 1:30-4*. Freshman.

2. Drafting. Elements of machine drawing, tracing, blue printing, brush shading, tinting, and topographic sketching. Patent office drawings. Measured work from machine parts and practical drafting-room methods receive special attention. *M. W. F., 9:30-12*. Sophomore, C. E.

3. Drafting. Assembly drawings and tracings are made from especially prepared sketches of details for the purpose of familiarizing the student with conventions used in engineering practice. The parts of a complete machine of approved design are then sketched freehand and the dimensions given on the sketches. Working drawings, assembly and detail, are made from these sketches without further reference to the parts. Blue prints are made by each student from his own tracings. *W., 9:30-12*. Sophomore, E. E. and M. E.

VIII. THE SCHOOL OF MINES AND METALLURGY

A Department of the University of Missouri.
(At Rolla, Missouri.)

FAULTY.

RICHARD HENRY JESSE, LL. D.,
President.

GEORGE EDGAR LADD, A. B., Ph. D.,
Director, and Professor of Geology and Mining.

GEORGE REINALD DEAN, B. S., C. E.,
Professor of Mathematics.

AUSTIN LEE McRAE, B. S., S. D.,
Professor of Physics.

VICTOR HUGO GOTTSCHALK, B. S., M. S.,
Professor of Chemistry.

IRA WELCH McCONNELL, C. E.,
Professor of Civil Engineering.

HERMAN OTTO SCHULZE, B. S., C. E., E. M.,
Assistant Professor of Metallurgy.

PAUL JULIUS WILKINS, B. S.,
Instructor in Modern Languages.

JOHN BENNETT SCOTT,
Instructor in English, and Secretary.

JAMES CLARK DRAPER, B. S.,
Instructor in Assaying and Mineralogy.

ALBERT DYKE WILSON, B. S.,
Instructor in Chemistry.

JOSEPH HENRY BOWEN,
Instructor in Shopwork and Drawing.

ROBERT CLAIR THOMPSON, B. S.,
Instructor in Chemistry.

GEORGE WALTER HARRIS,
Assistant in Chemical Laboratory.

LEON ELLIS GARRETT, B. S.,
Assistant in Mathematics.

CORNELIUS MARK DAILY, B. S.,
Assistant in Physical Laboratory.

ROYAL SYLVESTER WEBSTER,
Assistant in Surveying.

CYRUS EDWARD MINOR,
Assistant in Chemical Laboratory.

RALPH AUGUSTUS CONRAD,
Assistant in Crystallography.

GLEN BECKLEY MORGAN,
Assistant in Surveying.

IRA LEE WRIGHT,
Assistant in Surveying.

Organization:

In 1870, the General Assembly, in accepting the donation by the general government of lands for educational purposes, established an Agricultural College and School of Mines and Metallurgy, "the leading object of these Colleges" being "to teach such branches as are related to agriculture and mechanic arts and mining, including military tactics, and without excluding other scientific and classical studies, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life." The Statutes fix the status of the School of Mines as a Department of the State University. Its affairs are under the immediate supervision of the Executive Committee, consisting of three members of the Board of Curators of the University.

Location:

The School is located at Rolla, the county seat of Phelps county, on the St. Louis and San Francisco railroad, about midway between St. Louis and Springfield. Rolla has an altitude of 1,140 feet above sea level and enjoys an agreeable and notably healthful climate. It is midway between the mining districts of Southeast and Southwest Missouri.

Admission:

From Approved Schools.—Graduates of Approved Schools (see pages 39-41) who bring certificates signed by the Superintendent or Principal of the school showing that they have completed twelve (12) units in the subjects that may be offered for admission (see page 32), and that three (3) of these units are in English, two (2) in Algebra, and one (1) in Plane Geometry, will be admitted without examination.

By Examination.—Students not admitted by certificate from Approved Schools must pass examinations upon twelve (12) units, three (3) of which must be in English, two (2) in Algebra, and one (1) in Plane Geometry. For subjects that may be offered, see page 32.

Buildings and Equipment:

The buildings of the School of Mines are situated in the most elevated part of the town of Rolla. They are nearly all substantial brick structures well ventilated and lighted and heated by steam. There are eight in all: Mining and Metallurgical Building, Chemical Laboratory, Museum and Geological Survey Building, Workshop and Dynamo Laboratory, temporary building for Gymnasium, Club House, Mechanical Building, and Engineering Building.

Mining and Metallurgical Building.—The special building for the department of Mining and Metallurgy, finished in 1895, is equipped with the necessary appliances for a practical course in ore concentration, roasting and reduction.

The building consists of two distinct portions, one containing a chemical and mineralogical laboratory, lecture room, reference library, draughting room, petrographical laboratory, blue print room, etc; the other comprises a large mill room, an engine room, and a boiler room. The mill room is equipped with first-class modern machinery, of standard sizes, for crushing and concentration of ores, the plant containing a Dodge rock breaker, Cornish rolls, stamp battery with automatic feeder, Calumet hydraulic classifier, inlet discharge separator, Hartz jig, spitzkasten, Parsons-Rittinger percussion tables, Frue vanner, grinding and amalgamating pan and settler, with settling boxes. In addition to these, working models of different types of concentrators have been made by students of the School of Mines and contributed to its outfit. The reduction plant consists of a reverberatory roasting furnace, and a 20-inch water jacket cupola furnace, with Root blower, for lead and copper ores. There are also assay and cupellation furnaces, and before the beginning of next term it is hoped that a zinc distillation furnace will have been erected. A barrel chlorination outfit has also been added,

and the Ingersoll-Sergeant Drill Co. has presented the school with one of its steam and compressed air drills, with which the classes in mining are given experience in drilling.

The Metallurgical department is also equipped with clay testing apparatus, including the latest type of German-made special fire-clay testing furnaces and accessories and also the Kelser and Schmidt modifications of Le Chatillier's thermo-electric pyrometer for the measurement of high temperature.

The power for the above plant is derived from a 50 H. P. automatic engine, taking steam from two 35 H. P. tubular boilers.

By means of this equipment students receive practical instruction in the crushing and concentration of various ores, and in the metallurgical treatment of ores of lead, zinc, copper, gold and silver.

The Geological and Mineralogical equipment is also in this building, but will be removed to one of the new buildings during the next school year. This equipment includes a representative collection of minerals, rocks, and fossils for class use, and a large collection of cabinet specimens of minerals and ores, and of materials illustrating metallurgical processes. There is also a collection of 3500 specimens representing the mineral wealth of Missouri, consisting of ores of lead, zinc, iron and copper, coal, clays of many sorts, and building stones.

This department has also a very fine equipment for the study of crystallography, consisting of a large collection of wood and glass models, microscopes, rocks and mineral slides and the complete Fuess projection apparatus for illustrations of the optical properties of crystals.

A rock section machine and instruments for geological surveys are included in the equipment of this department.

Chemical Laboratory.—The Chemical Laboratory has recently been enlarged. It is a two story, substantial, well-lighted brick building, with large wings devoted entirely to the work of the Chemical department. It contains general qualitative, quantitative, organic, and assay laboratories, lecture room, preparation room, balance rooms, stock rooms, private laboratories, offices, and rooms for gas and water analysis, electrolysis, photography, etc.

Museum and Geological Survey Building.—This building contains for the present year the library, laboratories, and lecture and museum rooms. The departments of Physics and Civil Engineering are at present housed in this building. They have an excellent equipment in the way of laboratory supplies and field instruments and each year is materially adding to their equipment.

Workshop and Dynamo Laboratory.—This is a large wooden structure

necessitated by the rapid growth of the wood-working department and the need of more room for students engaged in electrical laboratory work. It is well lighted and is well equipped with carpenter benches, tools, wood and iron lathes, etc. The machinery is run either by electricity from a dynamo in the engine room of the Mining Building, or by a 15 H. P. Otto gasoline engine which is in this building.

The Dynamo Laboratory contains as a part of its equipment one 75 light United States dynamo, one 5 horse power Westinghouse motor, one 5 horse power C. & C. motor, one alternator, one 3-phase generator, single and polyphase transformers, with necessary testing apparatus.

Temporary Building for Gymnasium.—Owing to the large increase in the number of students attending the school, in the fall of 1899 it became necessary to utilize the old drawing room and the lecture room in the Chemical Building for laboratory purposes and a new temporary building was erected for drawing and lecture purposes. Now that the Chemical laboratory has been enlarged and ample facilities for drawing provided in the new buildings, this building in the immediate future will be used for a gymnasium.

Club House. This is a three-story brick building formerly used as a dormitory but at present occupied by the State Geological Survey.

Mechanical Building.—This is a two story brick building 150 feet by 60 feet specially designed for mechanical work. The second floor will be used for freshman drawing, carpentry work and wood turning. The first floor will contain a forge room, a power room and iron working room, and dynamo and hydraulic laboratories.

Engineering Building.—This building is a handsome structure 140 by 85 feet, and four stories in height, built of press brick, trimmed with stone.

Ample facilities are afforded in this building for administration and for the departments of Physics, Geology and Mineralogy, and Civil Engineering.

The Physical laboratory is on the basement floor. In addition to the general laboratory there is a photometer room, a constant temperature room, a storage battery room, an electrical testing room, and a laboratory for special work. This floor also contains a blower and fan room for heating and ventilating the building, and a room for storing engineering instruments. The first floor contains the Physics lecture room, Physics apparatus room, and study, two general lecture rooms, and two rooms for mineralogical collections. The second floor contains administration offices, faculty room, lecture room, Geological, Petrographical and Mineralogical laboratories, photographic room and private library.

The third floor contains a lecture room, two drawing rooms, blue print room, office, and department library.

Library—The Library contains about 4,000 volumes. It is well provided with scientific and technical works designed to afford the student an opportunity of supplementing his class-work by collateral reading. There is also a respectable collection of works of general literature. On its reading-tables the leading scientific periodicals and others of general or literary interest are accessible. The Library is open daily from 8 a. m. to 4 p. m.

Courses and Degrees:

The School of Mines offers four full Courses leading to the degree of Bachelor of Science, as follows: I. Mining Engineering, II. Civil Engineering, III. Chemistry and Metallurgy, IV. General Science; besides several special shorter courses.

The further degree of Engineer of Mines (E. M.), Civil Engineer (C. E.), Metallurgical Engineer (Met. E.), or Master of Science (M. S.), will be conferred on candidates who, after receiving the first degree from this University or one of equivalent standing, have spent in the same course one year (at least ten hours a week) in graduate work in the University, or two years in professional practice and in graduate work *in absentia*. The candidate must pass an examination on his graduate work and present a satisfactory thesis.

Expenses:

Laboratory Fees.—The Board of Curators at a meeting held in December, 1898, voted to make tuition free, and to abolish the entrance fees which had hitherto been charged. The fixed charges remaining are: a library fee of \$5 per year, payable upon entrance; a laboratory fee to cover the cost of gas and supplies, amounting to \$10, for the course in General Chemistry; a laboratory fee of \$15 to cover the cost of general supplies, gas, etc., for the course in Qualitative Analysis; a fee for seniors and juniors, taking Chemical laboratory work, of \$8.50; a fee for the course in Shop Work, to cover the cost of supplies, of \$5; a general fee, to cover the cost of supplies, for students taking Assaying, of \$25; a fee, for students taking Mineralogy, to cover the cost of supplies, of \$8; and a fee of \$5 for students in senior Metallurgy.

The above charges are made on the basis of the actual average cost per student for supplies in the respective courses, at wholesale rates.

Contingent Deposits.—Deposits, to cover the cost of extra supplies, damage to apparatus, etc., are required of the different classmen, as follows: Freshmen, \$10, Sophomores, Juniors and Seniors, \$15. Those

deposits must be renewed if at any time exhausted, and at the end of the school year whatever sum may remain to the credit of the depositor is returned to him.

No distinction, in admission or charges, is made between residents of this state and those of any other state or country.

Term Reports:

Reports are sent to the parents or guardians of each student, at the close of each term, showing the student's grade in scholarship, and giving such other information in regard to his progress, attendance, etc., as may be thought to be of interest. The attention of parents and guardians is particularly called to these reports.

SCHEMES OF STUDY.

I. Mining Engineering

FRESHMAN YEAR.

First Term.

Trigonometry, lectures and recitations.....	2 hours
Higher Algebra, lectures and recitations	5 hours
General Chemistry, lectures and recitations.....	4 hours
English, lectures and recitations.....	5 hours
Chemistry, laboratory work.....	1 afternoon
Drawing	2 afternoons
Shop practice	2 afternoons

Second Term.

General Chemistry, lectures and recitations	4 hours
Trigonometry, lectures and recitations.....	8 hours
Solid Geometry, lectures and recitations.....	3 hours
English, lectures and recitations.....	5 hours
Chemistry, laboratory work.....	1 afternoon
Drawing	2 afternoons
Shop practice	2 afternoons

Third Term.

General Chemistry, lectures and recitations.....	4 hours
Analytic Geometry, lectures and recitations.....	5 hours
Physica, lectures and recitations.....	4 hours
English, lectures and recitations.....	4 hours
Chemistry, laboratory work, Qualitative Analysis..	1 afternoon
Drawing	2 afternoons
Shop practice	2 afternoons

SOPHOMORE YEAR.

First Term.

Calculus, lectures and recitations.....	5 hours
Descriptive Geometry, lectures and recitations.....	2 hours
Surveying, lectures	3 hours
French, German or Spanish, lectures.....	5 hours
Chemistry, laboratory	2 afternoons
Field Practice in Surveying.....	2 afternoons
Descriptive Drawing	1 afternoon

Second Term.

Descriptive Geometry, lectures and recitations.....	2 hours
Calculus, lectures and recitations.....	5 hours
Mineralogy, lectures and laboratory.....	10 hours
French, German or Spanish, lectures.....	5 hours
Chemistry, laboratory work	2 afternoons
Descriptive Drawing	1 afternoon
Shop practice, forge	2 afternoons

Third Term.

Descriptive Geometry, lectures and recitations	3 hours
Calculus, lectures and recitations	5 hours
Physics, lectures and recitations	5 hours
French, German or Spanish, recitations	5 hours
Chemistry, elective work	2 afternoons
Descriptive Drawing	1 afternoon
Physics, laboratory	2 afternoons
Topography	1 week

JUNIOR YEAR.

First Term.

Mechanics, lectures and recitations.....	5 hours
Geology, lectures	3 hours
Ore-dressing, lectures	3 hours
Thermodynamics, lectures and recitations	5 hours
Quantitative Analysis or Assaying, laboratory work.....	2 afternoons
Steam Laboratory	1 afternoon
Ore-Dressing, laboratory work.....	Saturdays
Shop practice, metal.....	2 afternoons

Second Term.

Physics, lectures and recitations.....	5 hours
Geology, lectures	3 hours
Mechanics of Materials, lectures and recitations.....	4 hours
Metallurgy, lectures and recitations.....	5 hours

Physics, laboratory work.....	2 afternoons
Assaying or Quantitative Analysis, Drawing or Electrical Measurements—laboratory work	2 afternoons
Mineralogy, laboratory work	1 afternoon

Third Term.

Masonry, lectures and recitations.....	2 hours
Geology, lectures	3 hours
Dynamo Machinery, lectures and recitations.....	3 hours
Metallurgy, lectures and recitations.....	5 hours
Lines of Communication, lectures and recitations.....	3 hours
Physics, laboratory work	2 afternoons
Quantitative Analysis, Drawing or Motor Testing— laboratory work	3 afternoons
Metallurgy, laboratory work	Saturdays
Topography	1 week

SENIOR YEAR.

First Term.

Economic Geology, lectures	2 hours
Alternating Current Machinery, lectures and recitations...	5 hours
Metallurgy, lectures and recitations	5 hours
Framed Structures, lectures and recitations.....	5 hours
Dynamo Laboratory	2 afternoons
Metallurgical Designing	2 afternoons
Engineering Laboratory	1 afternoon
Metallurgy, laboratory work	Saturdays

Second Term.

Economic Geology, lectures	2 hours
Metallurgy, lectures and recitations	5 hours
Hydraulics, lectures and recitations.....	5 hours
Electrical Transmission, lectures and recitations.....	3 hours
Metallurgical Designing	3 afternoons
Electrical Problems and Designing	1 afternoon
Hydraulics, Problems and Designing	1 afternoon
Metallurgy, laboratory	Saturdays

Third Term.

Mining, lectures	5 hours
Contracts and Specifications	2 hours
Compressed Air and Power Transmission.....	2 hours
Thesis	5 afternoons

II. Civil Engineering**FRESHMAN YEAR.**

Same as in Mining Engineering.

SOPHOMORE YEAR.

Same as in Mining Engineering except that in the third term Civil Engineers take Chemical Laboratory work one afternoon and Field Practice two afternoons instead of Chemical Laboratory two afternoons and Field Practice one afternoon.

JUNIOR YEAR.*First Term.*

Railroad Construction	3 hours
Mechanics, lectures and recitations.....	5 hours
Geology, lectures and recitations.....	3 hours
Roads and Pavements, lectures and recitations.....	3 hours
Astronomy, lectures and recitations.....	3 hours
Physics, laboratory work.....	1 afternoon
Drawing and Field Practice	4 afternoons

Second Term.

R. R. Economics of Location.....	5 hours
Physics, lectures and recitations.....	5 hours
Metallurgy, lectures and recitations.....	5 hours
Geology, lectures	3 hours
Cement and Concrete	2 hours
Physics, laboratory work	2 afternoons
Drawing and Design	3 afternoons

Third Term.

Mechanics of Materials.....	4 hours
Masonry, lectures and recitations	2 hours
Bridge Stresses, lectures and recitations.....	4 hours
Lines of Communication, lectures and recitations.....	5 hours
Geology, lectures and recitations.....	3 hours
Physics, laboratory work	2 afternoons
Drawing	3 afternoons

SENIOR YEAR.

First Term.

Structural Design, lectures and recitations	4 hours
Alternating Current Machinery	5 hours
Framed Structures	5 hours
Metallurgy of Steel (special course).....	8 hours
Dynamo Laboratory	2 afternoons
Engineering Laboratory	1 afternoon
Drawing and Designing	2 afternoons

Second Term.

Hydraulics, lectures and recitations.....	5 hours
Electrical Transmission	3 hours
Bridge Stresses, lectures and recitations	4 hours
Electrical Problems and Designing.....	1 afternoon
Hydraulic Problems and Designing.....	1 afternoon
Drawing and Designing	3 afternoons

Third Term.

Bridge Designing	4 hours
Sanitary Engineering, lectures and recitations.....	2 hours
Compressed Air Power Transmission.....	2 hours
Contracts and Specifications	2 hours
Thesis	5 afternoons

III. Chemistry and Metallurgy

FRESHMAN YEAR.

Same as Mining Engineering except that German is obligatory.

SOPHOMORE YEAR.

Class room work same as in Mining Engineering, except that during the first term Applied Chemistry is substituted for surveying. Laboratory work.

First Term.

Chemistry	3 afternoons
Drawing	2 afternoons

Third Term.

Chemistry	3 afternoons
Physics	2 afternoons

JUNIOR YEAR.

First Term.

Mechanics, lectures and recitations.....	5 hours
Geology, lectures and recitations.....	3 hours
Ore Dressing, lectures and recitations.....	3 hours
Mineralogy, laboratory work	2 afternoons
Chemistry, laboratory work	3 afternoons
Ore Dressing	Saturdays

Second Term.

Metallurgy, lectures and recitations.....	5 hours
Physics, lectures and recitations.....	5 hours
Geology, lectures and recitations.....	3 hours
*A. Mechanics of Materials.....	4 hours
*B. Theoretical Chemistry	5 hours
Physics, laboratory work	2 afternoons
Chemistry, laboratory work	2 afternoons
Mineralogy, laboratory work	1 afternoon

Third Term.

A. Masonry, lectures and recitations.....	2 hours
Geology, lectures	3 hours
Physical Chemistry	5 hours
Metallurgy, lectures and recitations	5 hours
Chemistry, laboratory work	4 afternoons
Metallurgy, laboratory work	Saturdays

SENIOR YEAR.

First Term.

A. Metallurgy of Steel	3 hours
Metallurgy, lectures and recitations.....	5 hours
A. Alternating Currents, lectures and recitations.....	5 hours
B. Organic Chemistry, lectures and recitations.....	4 hours
B. Elective	5 hours
Metallurgy, laboratory work	Saturdays
Chemistry, laboratory work	3 afternoons
Designing	2 afternoons

Second Term.

Metallurgy, lectures and recitations.....	5 hours
Electro-Metallurgy, lectures and recitations.....	3 hours
B. Organic Chemistry, lectures and recitations.....	4 hours

*Students specializing in Metallurgy take course A, and those specializing in Chemistry take course B.

A. Hydraulics	5 hours
Electro-Metallurgy, laboratory work	2 afternoons
A. Designing	3 afternoons
B. Chemistry, laboratory work	3 afternoons
Metallurgy, laboratory work	Saturdays

Third Term.

B. Organic Chemistry, lectures and recitations.....	4 hours
A. Metallurgical Problems	5 hours
Elective	4 hours
Thesis	5 afternoons

IV. Academic Course.—General Science

With Electives from the Courses in Engineering.

FRESHMAN YEAR.*First Term.*

English	5 hours
Higher Algebra	5 hours
Chemistry	4 hours
Chemistry, laboratory work	1 afternoon
Drawing	2 afternoons

Second Term.

English	5 hours
Solid Geometry	3 hours
General Chemistry	4 hours
Chemistry, laboratory work	1 afternoon
Drawing	2 afternoons

Third Term.

English	4 hours
Physics	4 hours
General Chemistry	4 hours
Chemistry, laboratory work	1 afternoon
Drawing	2 afternoons

SOPHOMORE YEAR.*First Term.*

Trigonometry	2 hours
English	3 hours
French, German or Spanish.....	5 hours
Applied Chemistry	4 hours
Chemistry, laboratory work	2 afternoons
Elective	2 afternoons

Second Term.

Applied Chemistry	3 hours
Trigonometry	3 hours
French, German or Spanish.....	5 hours
Elective	5 hours
English	5 hours
Elective, drawing or laboratory work.....	5 afternoons

Third Term.

Analytics	5 hours
Physics	5 hours
French, German or Spanish	5 hours
English	2 hours
Physics, laboratory work	2 afternoons
Elective, drawing or laboratory work.....	3 afternoons

JUNIOR YEAR.

First Term.

Elective	18 hours
Elective	5 afternoons

Electives :

Surveying	8 hours
French or German	2 hours
Geology	3 hours
Mineralogy	2 hours
Astronomy	3 hours
Biology	3 hours
Physical Geography	5 hours
English History	5 hours
Masonry Construction	3 hours
Mathematics	5 hours
Mechanics	5 hours
Ore Dressing	3 hours

Second Term.

Elective	18 hours
Elective	5 afternoons

Electives :

Descriptive Geometry	3 hours
Dynamo Machinery	3 hours
Physics	5 hours
Theoretical Chemistry	5 hours
Biology	3 hours
Mineralogy	4 hours
Geology	3 hours
Physical Geography	5 hours
Mathematics	5 hours

Third Term.

Elective	18 hours
Elective	5 afternoons

Electives :

Metallurgy	5 hours
Alternating Current Machinery	5 hours
Descriptive Geometry	3 hours
Theoretical Chemistry	5 hours
Geology	3 hours
Physical Geography	5 hours
Mathematics	5 hours

SENIOR YEAR.

All elective. Selection of studies subject to approval of Professor.

Electives after Sophomore year along one of the two lines, Physics and Mathematics, or Chemistry and Geology. Twenty-one hours recitation or sixteen hours recitation and five hours laboratory work constitute a Course.

SPECIAL COURSES.

1. Chemistry and Assaying

FIRST YEAR.

First Term.

English	5 hours
Algebra	5 hours
Chemistry	4 hours
Chemistry, laboratory work	3 afternoons
Elective	2 afternoons

Second Term.

English	5 hours
General Chemistry	4 hours
Chemistry, laboratory work	3 afternoons
Elective	2 afternoons

Third Term.

General Chemistry	4 hours
Physics	4 hours
English	4 hours
Chemistry	3 afternoons
Elective	2 afternoons

SECOND YEAR.

First Term.

Applied Chemistry	8 hours
Mineralogy	4 hours
Geology	3 hours
Ore Dressing	3 hours
Chemistry and Assaying, laboratory work	4 afternoons

Second Term.

Applied Chemistry	8 hours
Mineralogy	4 hours
Geology	3 hours
Elective	2 hours
Chemistry and Assaying, laboratory work	5 hours

Third Term.

Geology	3 hours
Elective	8 hours
Chemistry and Assaying, laboratory work	4 afternoons

2. Mining

FIRST YEAR.

First Term.

Trigonometry	2 hours
Algebra	5 hours
English	5 hours
General Chemistry	4 hours
Chemistry, laboratory work	1 afternoon
Drawing	2 afternoons
Shop Practice	2 afternoons

Second Term.

General Chemistry	4 hours
Solid Geometry	3 hours
Trigonometry	3 hours
Chemistry, laboratory work	1 afternoon
Drawing	2 afternoons
Shop Practice	2 afternoons

Third Term.

General Chemistry	4 hours
English or Physics	4 hours
Chemistry, laboratory work	2 afternoons
Drawing	1 afternoon
Shop Practice	2 afternoons

SECOND YEAR.

First Term.

Ore Dressing	3 hours
Surveying	3 hours
Applied Chemistry	3 hours
Geology	3 hours
Field Practice	3 afternoons
Mineralogy, laboratory work	1 afternoon
Ore Dressing	Saturdays

Second Term.

Applied Chemistry	3 hours
Geology	3 hours
Mineralogy	6 hours
Chemistry, laboratory work and assaying	5 afternoons

Third Term.

Geology	3 hours
Mining	4 hours
Metallurgy, elective	5 hours
Metallurgy, laboratory work	Saturdays
Elective	5 afternoons

8. Electricity

FIRST YEAR.

First Term.

Higher Algebra	5 hours
Trigonometry	2 hours
English	5 hours
General Chemistry	4 afternoons
Chemistry, laboratory work	1 afternoon
Drawing	2 afternoons
Shopwork	2 afternoons

Second Term.

General Chemistry	4 hours
English	5 hours
Solid Geometry	3 hours
Trigonometry	3 hours
Chemistry, laboratory work	1 afternoon
Drawing	2 afternoons
Shopwork	2 afternoons

Third Term.

General Chemistry	4 hours
English	4 hours
Physics	4 hours
Analytic Geometry	5 hours
Physics, laboratory work	2 afternoons
Chemistry, laboratory work	1 afternoon
Drawing or Shopwork	2 afternoons

SECOND YEAR.

First Term.

Electricity and Magnetism	3 hours
Calculus	5 hours
Elective	4 hours
Physical Laboratory	3 afternoons
Elective	2 afternoons

Second Term.

Physics	5 hours
Calculus	5 hours
Elective	4 hours
Physical Laboratory	3 afternoons
Elective Laboratory	2 afternoons

Third Term.

Calculus	5 hours
Physics	5 hours
Dynamo Machinery	3 hours
Dynamo Laboratory	3 afternoons
Drawing	2 afternoons

4. Surveying

FIRST YEAR.

First Term.

Trigonometry	2 hours
Algebra	5 hours
Drawing	2 afternoons
Elective	2 afternoons

Second Term.

English	5 hours
Trigonometry	3 hours
Geometry	3 hours
Drawing	2 afternoons
Elective	3 afternoons

Third Term.

English	4 hours
Elective	10 hours
Drawing	2 afternoons
Elective	3 afternoons

SECOND YEAR.

Surveying	3 hours
Elective	6 hours
Field Practice	3 afternoons
Drawing	2 afternoons

For further information and special catalogues of the School address.

GEORGE E. LADD, Director,

Rolla, Mo.

LIST OF STUDENTS.

Graduate Department.

Name.	Dep't.	Postoffice.	County.
<i>Fellows.</i>			
ANATOMY.			
Du Bois, Charles Clifford, A. B.....	Acad.	Kansas City	Jackson.
ROMANCE LANGUAGES.			
Evers, Helene Margaret, A. B., A. M.	Acad.	St. Louis City.....	
HISTORY.			
Tuthill, James Edward, A. B.....	Acad.	Salina, Kansas.....	
PHYSICS.			
Whealdon, Albert D., A. B.....	Acad.	Caldwell, Ohio.....	
<i>Other Graduate Students.</i>			
Ankeney, Mrs. Lucy Gentry, A. D. P., B. P.....	Acad.	Columbia.....	Boone.
Barnett, Mary Jesse, A. B., A. M....	Acad.	Columbia.....	Boone.
Barnett, Alfred Greenleaf, A. B.....	Acad.	Kansas City	Jackson.
Bernstorf, Frank Adolph, A. B.....	Acad.	Bushton, Kan.	
Blackwell, Paul Alex., B. S. in C. E..	Eng.	Canonsburg, Pa.	
Boman, John Sidney, A. B.....	Acad.	Roads	Carroll.
Bristol, Emerson, A. B.....	Acad.	Kipp, Mont.	
Brundige, John Alvin, B. S. in M. E..	Eng.	Adrian.....	Bates.
Busch, Ella Adeline, A. B.....	Acad.	Washington.....	Franklin.
Daniels, Francis Potter, A. B., A. M.	Acad.	Alto, Mich.	
Dashiell, Laura Henry, A. B.....	Acad.	Columbia.....	Boone.
Elwang, William Wilson, Ph. B., A. M.	Acad.	Columbia	Boone.
Favor, Ernest Howard, A. B.	Acad.	Springfield.....	Greene.
Freudenberger, Norman, A. B., A. M.	Acad.	Clarksburg	Moniteau.
Green, Talitha Jennie, A. B.	Acad.	Lathrop	Clinton.
Greene, Mrs. Flora Hartley, A. B...	Acad.	Columbia.....	Boone.
Hodge, Robert Walter, B. S. in E. E. A. B., A. M.....	Eng.	Kansas City	Jackson.
Horton, Henry Pomeroy, Ph. B....	Acad.	Columbia.....	Boone.
Howard, Walter Lafayette, B. S. in Agr.	Agri.	Billings....	Christian.
Jesse, Richard Henry, Jr., A. B.....	Acad.	Columbia	Boone.
Kahn, Theckla, A. B.....	Acad.	Columbia	Boone.
Kirkpatrick, Alice May, A. B.....	Acad.	Boston, Mass.	
Lyman, Forest Shepard, B. S. in E. E.	Eng.	Kansas City	Jackson.
Mason, Elliott Jeffries, B. S. in M. E.	Eng.	Pittsburg, Pa.	
Montgomery, Maud Ellis, A. B.....	Acad.	Columbia.....	Boone.
Morse, Henry Simmons, B. S. in M. E.	Eng.	Warren, Pa.	
Mumford, Frederick Blackmar, B. S., M. S.	Acad.	Columbia	Boone.
Olmstead, Mabel, A. B.....	Acad.	St. Louis City.....	
Organ, Minnie Katherine, B. L., A. M.	Acad.	Salem.....	Dent.
Perry, Thomas Benton, B. S.	Acad.	Carthage	Jasper.
Pinkley, Roy Henry, B. S. in E. E..	Eng.	Chillicothe	Livingston.
Potter, Peter, B. S.....	Acad.	Columbia	Boone.
Rothwell, Wade Hampton, LL. B...	Law	Columbia	Boone.
Ruffner, Chas. Shumway, B. S. in E. E.	Eng.	Palmyra.....	Marion.
Shaw, Edward Lee, B. S.	Agri.	Newark, Ohio.	
Shaw, Russell Aubrey, LL., B...	Law	Columbia	Boone.
Sinclair, Elizabeth May, B. L.....	Acad.	Columbia	Boone.
Smith, Jessie Agnes, A. B.....	Acad.	Bloomington, Ind.	
Tuttle, Floyd Wilkins, A. B.....	Acad.	Columbia.....	Boone.
Vaughn, Ernest VanCourt, B. L.....	Acad.	Columbia	Boone.
Walton, Stonewall Jackson, LL. B...	Law	Troy	Lincoln.
Zeigel, Willam Henry, A. B.....	Acad.	Lamine.....	Cooper.

Academic Department.

Name.	Postoffice.	County.
<i>Senior Class.</i>		
Allinger, Henry Wesley.....	Bushton, <i>Kan.</i>	
Babb, Minnie May	Wichita, <i>Kan.</i>	
Baird, James Claud	Redding, <i>Iowa.</i>	
Baker, Beulah Norvelle.....	Columbia	Boone.
Barnett, Mary Jesse	Columbia	Boone.
Barth, Louis Levi	Mexico.....	Audrain.
Bek, William Godfrey.....	Hermann	Gasconade.
Boardman, Emma.....	Harrisonville.....	Cass.
Bond, Bessie Brown.	Ann Arbor, <i>Mich.</i>	
Bonnot, Remigius Edmond August.....	Bonnot's Mill.....	Osage.
Bradsher, Earl	Clifton Hill.....	Randolph.
Brewer, Lake.....	Ridgeway	Harrison.
Caldwell, Robert Breckenridge	Nadine.....	Ralls.
Canada, Charles Walden	Shafter.....	Linn.
Chasnoff, Jacob	St. Joseph.....	Buchanan.
Collins, Charles	Kirkwood.....	St. Louis.
Davis, Homer Jason.....	Miller	Lawrence.
Denton, Clarabel	Kansas City.....	Jackson.
Deziel, Raymond.....	Barre, <i>Vt.</i>	
Draper, Henry Edgar	Columbia	Boone.
Elliff, Joseph Dolliver.....	Joplin	Jasper.
Ellis, Tom Montgomery	Barnard	Nodaway.
Fogle, Claude Chester	Lancaster	Schuyler.
Gates, James Milton	Montrose	Henry.
Gentry, Richard White.....	Sedalia	Pettis.
Goodson, William Hammack.....	New Cambria	Macon.
Gray, Nellie.....	Columbia	Boone.
Gray, Daniel Thomas	Stanberry	Gentry.
Hageman, George W.....	Fitzgerald, <i>Ga.</i>	
Hamilton, Goldy Mitchell.....	Dwight, <i>Ill.</i>	
Hays, William Henry.....	Jackson	Cape Girardeau.
Heyd, Jacob Wilhelm.....	Kirksville.....	Adair.
Higbee, Walter A.....	Lancaster	Schuyler.
Hogan, Jesse Franklin	Maryville	Nodaway.
Irvine, Ernest Albert.....	Vandalla	Audrain.
Koch, Clara May Barbara.....	LaGrange.....	Lewis.
Loeb, Virgil	Columbia	Boone.
Lowe, Collier Alden.....	Mokane	Callaway.
Massie, Alice Ethel.....	Raymore	Cass.
Miller, William Frederic.....	Queen City	Schuyler.
Moore, Henry Thomas.....	Moberly	Randolph.
Mullinax, Ira David.....	Princeton	Mercer.
McAlester, Andrew Walker, Jr.....	Columbia	Boone.
McBaine, Richard Hiram.....	Columbia	Boone.
McCaleb, Rebecca Isabel	Tarkio	Atchison.
Nardin, William Thompson.....	Vandalla	Audrain.
Nowell, Fannie R.....	Columbia	Boone.
O'Connor, Tom Edward.....	Maryville	Nodaway.
Owen, Frederick Benjamin.....	Clinton	Henry.
Packard, Eva Lorena.....	Cameron.....	Clinton.
Prentis, Henning Webb, Jr.....	St. Louis City.	
Riggs, Jephtha.....	Crab Orchard	Rav.
Rodes, Charles Bradford, Jr.	Sedalia	Pettis.
Schlierholz, Flora Mary	Little Rock, <i>Ark.</i>	
Sloop, Charles J.....	Queen City.....	Schuyler.
Steele, Oliver Lee.....	Carmi, <i>Ill.</i>	
Steele, Charles Dugan.....	Norton	Saline.
Stephens, Edwin Sydney	Columbia	Boone.
Stone, Ira Thomas Gabbert.....	Columbia	Boone.
Stoner, Carolyn.....	Kansas City.....	Jackson.
Storm, Fred Erwin.....	Maryville	Nodaway.
Stump, Maggie Lou	Nevada.....	Vernon.
Super, Irvin Paul.....	St. Louis City.	

Name.	Postoffice.	County.
Sweet, Arthur T.....	Curryville.....	Pike.
Thurman, Harold Clark.....	Lamar.....	Barton.
Vaeth, Joseph Anthony.....	Ste. Genevieve.....	Ste. Genevieve.
VanderVeer, William Tenent.....	King City.....	Gentry.
Walker, Mary Shore.....	Columbia.....	Boone.
Welch, John Gunn.....	Columbia.....	Boone.
Welch, Howard.....	Columbia.....	Boone.
White, Robert Ernest.....	Harrisonville.....	Casa.
Winslow, Isabella Austin.....	Kansas City.....	Jackson.
Withers, Allen Lee.....	Kansas City.....	Jackson.
Wornall, Rowan Buchanan.....	Kansas City.....	Jackson.
Yunker, Blanche.....	Louisiana.....	Pike.
<i>Junior Class.</i>		
Abernathy, Robert Turner.....	Pierce City.....	Lawrence.
Alexander, Wallace.....	Kirkville.....	Adair.
Allen, Elmer Jackson.....	Dadeville.....	Dade.
Ammerman, Joseph William.....	Columbia.....	Boone.
Anderson, Axel Isadore.....	Kansas City.....	Jackson.
Ankeney, John Sites, Jr.....	Columbia.....	Boone.
Barnes, Maude.....	Ft. Smith, Ark.	
Bates, Leslie E.....	Excelsior Springs.....	Clay.
Biggs, Everett Elmo.....	Ashland.....	Boone.
Birch, Frank Hewitt.....	Hannibal.....	Marion.
Blodgett, Franc Mabel.....	Shelbina.....	Shelby.
Bodenheimer, Sophia.....	Jefferson City.....	Cole.
Borgstadt, Harry.....	Concordia.....	Lafayette.
Branham, Madeline.....	Columbia.....	Boone.
Brous, Bertrand Caley.....	Esrom.....	Barton.
Brown, Harlan LeRoy.....	Trenton.....	Grundy.
Brown, Herbert Everly.....	Trenton.....	Grundy.
Burruss, Marion.....	Columbia.....	Boone.
Carmack, James Abner.....	Butte.....	Sullivan.
Carrington, Will John.....	Jefferson City.....	Cole.
Cauthorn, Bessie.....	Columbia.....	Boone.
Cobb, Samuel Franklin.....	Columbia.....	Boone.
Cochel, Mary Alice.....	Columbia.....	Boone.
Conway, Mary Ellen.....	Vandalia.....	Audrain.
Coontz, Laura.....	Vandalia.....	Audrain.
Corder, Lotta Frances.....	Corder.....	Lafayette.
Cosby, Byron.....	Butler.....	Bates.
Cosgrove, Daniel Watson.....	Boonville.....	Cooper.
Craig, James Herman.....	Cyrene.....	Pike.
Crouch, Clarence Clinton.....	Columbia.....	Boone.
DeBolt, Edith Lorestine.....	Chillicothe.....	Livingston.
Dockery, Leota Lillian.....	Kirkville.....	Adair.
Donnell, Forrest C.....	Maryville.....	Nodaway.
Dungan, Edith Lucile.....	Oregon.....	Holt.
Edwards, Eliza Russell.....	Centralla.....	Boone.
Fair, Eugene.....	Gilman City.....	Harrison.
Fisher, Russell Alvin.....	St. Louis City.....	
Frazier, Leland.....	Grand Centre.....	Randolph.
Freeman, Herman Harrison.....	Paris.....	Monroe.
Frieze, Everette.....	Bona.....	Dade.
Gray, Laura Lucile.....	Columbia.....	Boone.
Green, Ernest Abner.....	Desoto.....	Jefferson.
Hayhurst, Paul.....	Fredonia, N. Y.	
Hobart, Frank Grant.....	Sedalia.....	Pettis.
Hoffman, Luella Dimmitt.....	Sedalia.....	Pettis.
Hogsett, William Sloan.....	Kansas City.....	Jackson.
Hughes, Uriel Wright.....	Coalgate, Ind. Ter.	
Johnson, Grace G.....	Hamilton.....	Caldwell.
Kelsey, Fred.....	Farmington, Wash.	
Kennedy, Gertrude Sarah.....	St. Louis City.....	

County.

Hawthorn.
Jackson.
Hawesway
Boone
Gentry
Denton
Cam
Jackson
Gentry
Gentry

Martin.
Jackson.
Bollinger

Jackson
Sullivan.
Adair

Jackson.
Boone
Boone
Audrain.
Bain
Randolph.
Clay
Audrain.
Vernon
Boone
Jackson.

Holt
Monroe.

Adair
Schuyler.
Jackson.
Washington.
St. Charles.
De Kalb
Tazewell
Boone
Andrew
Johnson
Morgan.
Sullivan

Casper.

Denton.
Audrain.
Boone
Monroe.
Buchanan.

Clay
Lafayette.
Shelby
Tazewell
Boone
Crestland.
St. Louis.
Boone.

Name.	Postoffice.	County.
Brunjes, Ernest August	Warsaw.....	Benton.
Clevenger, Joseph Raymond	Excelsior Springs ...	Clay.
Cochel, Charlotte Calvin.....	Columbia	Boone.
Cole, Redmond Selecman.. ..	Columbia	Boone.
Comer, Edward Smith.....	Mound City	Holt.
Comstock, Clark Wesley	King City.....	Gentry.
Conley, Helen Singleton.....	Columbia	Boone.
Cosgrove, Daniel Watson.....	Boonville	Cooper.
Craig, James Edward	Poplar Bluff.....	Butler.
Dean, Finis	El Dorado Springs..	Cedar.
Dickinson, Clement Parks.....	Clinton.....	Henry.
Dimmitt, Philip Vaughn.....	Columbia	Boone.
Douglass, William Burr.....	Kansas City.....	Jackson.
Duvall, Jennie Adelina	Harrisonville	Cass.
Dyer, Roy Homer.....	Shackelford	Saline.
Eastman, Fred Ward.....	Winston	Daviess.
Edwards, Katherine.....	Centralia.....	Boone.
Eitzen, Hertha A.....	Columbia.....	Boone.
Elliff, Mrs. Jean Scott	Joplin	Jasper.
Estill, Clifton Rodes	Estill.....	Howard.
Ferguson, James Taylor.....	Mokane	Callaway.
Fields, Grace.....	Fayette	Howard.
Fisher, Mary McFarlane	Columbia	Boone.
Fleming, Marie.....	Columbia.....	Boone.
Floyd, William Harris III.	St. Joseph	Buchanan.
Fore, Harry Franklin	Gentryville.....	Gentry.
Foster, Ina Harris.....	Columbia	Boone.
Frank, Simon Michael.....	St. Louis City.....	
Gentry, Lee Morrison	Sedalia	Pettis.
Gilleland, Anna	Harrisonville.....	Cass.
Guthrie, Fannie Virginia	Columbia.....	Boone.
Hackler, John Monroe.....	Adrian	Bates.
Harris, Anna Leigh	Webster Groves.....	St. Louis.
Hartwell, Charles Norris	Teng Chow Fu, <i>China</i> ..	
Haynes, Eli Stuart	Trenton	Grundy.
Hewitt, John V.	Shelbyville.....	Shelby.
Hollingshead, Ralph Earl	Joplin	Jasper.
Horner, Glen Roy.....	Deepwater	Henry.
Hume, Leslie Walker	Armstrong	Howard.
Hutchinson, Mrs. Katherine V.....	Columbia.....	Boone.
Imbler, Thomas Warren	Kirksville	Adair.
Ingold, Warren.....	Wyaconda	Clark.
Jackson, Eliza Lucile	Columbia.....	Boone.
Jeffreys, Oliver Anderson	Weiser, <i>Idaho</i>	
Johnson, Isabell	Columbia	Boone.
Jones, Edna Bascom.....	Chillicothe	Livingston.
Keeler, John Patrick	Maryville	Nodaway.
Kern, Robert Russ	Kansas City.....	Jackson.
Kimpel, Ben Drew	Dermot, <i>Ark.</i>	
Kirk, Todd	Kirksville	Adair.
Knott, Elizabeth Breckenridge	Hannibal	Marion.
Kunz, Frank Oliver.....	Aspen, <i>Col.</i>	
Lash, Anna Katherine.....	Kansas City.....	Jackson.
Leaphart, Charles William	Brookfield.....	Linn.
Lowry, Ethelyn Margaret.....	Walker.....	Vernon.
Macfarlane, Guy O'Rear	Mexico	Audrain.
Marsh, Samuel Ferguson.....	King City.....	Gentry.
Maxwell, Allen Arthur	St. Joseph.....	Buchanan.
Meister, James Franklin.....	Kansas City.....	Jackson.
Moore, Burnes Vaughan.....	Kansas City.....	Jackson.
Myers, Robert Lee	Everton.....	Dade.
McCallon, Emma.....	Rankin.....	Andrew.
McGhee, Alma Myrtle.....	Grandin.....	Carter.
McGill, Caroline	Lebanon	Laclede.
McGlothlin, Mary Edith	Columbia	Boone.

Name.	Postoffice.	County.
McLemore, Clyde.....	Everton.....	Dade.
Newkirk, Corn Matilde.....	La Belle.....	Lewis.
Newman, John Henry.....	Fontainebleau.....	Andrew.
Pearcy, Elmer Egerton..	Thornfield.....	Ozark.
Pearman, Will Robert.....	Ashland.....	Boone.
Penter, Benton Johnston.....	Ashland.....	Boone.
Pierce, Harry Llewellyn.....	Columbia.....	Boone.
Potts, Roscoe Fairbanks.....	Kansas City.....	Jackson.
Price, John Emmet.....	Harrisonville.....	Cass.
Read, Ella.....	Columbia.....	Boone.
Robertson, David Hiner.....	Mexico.....	Audrain.
Ross, Charles Griffith.....	Independence.....	Jackson.
Ruenzi, Williametta.....	Columbia.....	Boone.
Russell, Walter Clarence.....	Columbia.....	Boone.
Sadler, Norman Joseph.....	St. Louis City.....	
Sander, Albert Martin.....	Tilsit.....	Cape Girardeau.
Schooling, Lacy Parks.....	Moberly.....	Randolph.
Sears, Edward Nelson.....	Deer Ridge.....	Lewis.
Sears, Herbert Ivison.....	LaPlata.....	Macon.
Shockley, Maude Alice.....	Columbia.....	Boone.
Smith, Gene Irvin.....	Monticello, <i>Kan.</i>	
Smoot, Willie Isadore.....	Columbia.....	Boone.
Snyder, Joseph Conway.....	Clayton.....	St. Louis.
Stewart, George Earle.....	Columbia.....	Boone.
Stump, Vivian French.....	Nevada.....	Vernon.
Terrell, Gussie May.....	Macon.....	Macon.
Underwood, George Arthur.....	Kansas City.....	Jackson.
Ward, James Gordon.....	Balm.....	Cedar.
Ward, Walter Delbert.....	Skidmore.....	Nodaway.
Wayman, Warrick Allen.....	Kansas City.....	Jackson.
Weese, William Joshua.....	Athlestone, <i>Iowa.</i>	
Weinbach, Mendel Pencker..	St. Louis City.....	
Welborn, Arthur Tarance.....	Bloomfield.....	Stoddard.
Welty, Lois.....	Oregon.....	Holt.
Westlake, Dixie.....	Columbia.....	Boone.
White, Hazel.....	Norborne.....	Carroll.
Wiley, Frank Leslie.....	Ridgeway.....	Harrison.
Williams, Bettie.....	St. Joseph.....	Buchanan.
Williams, Olive.....	Carthage.....	Jasper.
Wilson, Garland.....	Bethany.....	Harrison.
Winslow, Margaret White.....	Kansas City.....	Jackson.
Winslow, Mary Olive.....	Kansas City.....	Jackson.
Winslow, Anna Elizabeth.....	Kansas City.....	Jackson.
Wood, Harry Cunningham.....	New London.....	Ralls.
Woodson, Thomas Dupuy, Jr.....	Richmond.....	Ray.
Wright, Anna Elizabeth.....	Norborne.....	Carroll.
Wright, Porter.....	Chilhowee.....	Johnson.
Zumbrunnen, Emile Miles.....	Braymer.....	Caldwell.

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Freshman Class.

Adams, Wilkie Myrtle.....	Columbia.....	Boone.
Alder, Ettie Mildred.....	Cane Hill.....	Cedar.
Allen, Grace Lillian.....	Dadeville.....	Dade.
Anderson, Harvey Winfred.....	Goodwater.....	Iron.
Anderson, Mac.....	Columbia.....	Boone.
Arnold, Marcia Louise.....	San Jose, <i>Cal.</i>	
Babb, Virginia Elizabeth.....	Wichita, <i>Kan.</i>	
Babcock, Frank Larue.....	Moberly.....	Randolph.
Bacon, Edith Elizabeth.....	Kidder.....	Caldwell.
Baker, Eula Blythe.....	Sedalia.....	Pettis.
Barry, Norman Clarke.....	Stroudsburg, <i>Pa.</i>	
Battersby, Richard Stanley.....	Sedalia.....	Pettis.
Bonfoey, Laurance Powers.....	Unionville.....	Putnam.
Boyd, Allie.....	Deepwater.....	Henry.
Brown, Orville Allen.....	Monroe City.....	Monroe.

Name.	Postoffice.	County.
Brown, William Salem	Troy	Lincoln.
Brunjes, Peter Albert.....	Warsaw.....	Benton.
Burns, Rose Ella.....	Omaha, <i>Neb.</i>	
Cannon, James Robert	Harrisonville.....	Cass.
Carr, Gloria Washington.....	Vandalia.....	Audrain.
Carroll, Ellen Volumnia.....	Columbia.....	Boone.
Claypool, Virginia Meredith	Muncie, <i>Ind.</i>	
Cochrane, Phillip Sidney.....	Antrim, <i>N. H.</i>	
Coe, Montelle Galbreath	San Francisco, <i>Cal.</i>	
Cole, Charles Arthur.....	Quaker.....	Washington.
Cole, Winfred Bryan.....	Quaker.....	Washington.
Conger, Emma Mae.....	Columbia.....	Boone.
Conley, John Winfield.....	Hamilton..	Caldwell.
Covington, Ruth Olive.....	Dexter.....	Stoddard.
Crouch, Menta Leslie.....	Columbia.....	Boone.
Dalby, John R.....	Sedalia.....	Pettis.
Dale, Fred Hiner.....	Milo.....	Vernon.
Daley, Lyle Miner.....	Hamilton.....	Caldwell.
Demeter, Reinhold Rudolph.....	Macon.....	Macon.
Dew, Samuel Arthur	Kansas City.....	Jackson.
Dimmitt, Joseph Bowles.....	Columbia.....	Boone.
Divers, William Perry.....	Auxvasse.....	Callaway.
Dooley, Marion Sylvester.....	Houston.....	Texas.
Dow, Harvey Dill.....	Sedalia.....	Pettis.
Ducker, Walter Scott.....	Sedalia.....	Pettis.
Dudley, Frank Wesley	Caruthersville.....	Pemiscot.
Eastman, Cecil Keefer.....	Winston.....	Daviess.
Edwards, James Andrew.....	Centralia.....	Boone.
Ellis, James Daniel.....	Kansas City.....	Jackson.
Estes, Robert James.....	Stilwell, <i>I. T.</i>	
Fields, Howard.....	Paris.....	Monroe.
Fine, Martha Payne.....	Columbia.....	Boone.
Fitch, Mary.....	Warrensburg.....	Johnson.
Fitch, Ruby.....	Warrensburg.....	Johnson.
Fleming, Edwin D. Rush.....	Columbia.....	Boone.
Foglesong, Sara Ella.....	Lamar.....	Barton.
Forrester, Bruce.....	Kansas City.....	Jackson.
Franken, William Alwicious.....	Norborne.....	Carroll.
Fristoe, Charles Wisdom	Palo Pinto.....	Benton.
Galbraith, Eliza	Everton.....	Dade.
Garrett, William Lloyd.....	Independence.....	Jackson.
George, Bertha May.....	Hamilton.....	Caldwell.
Gibson, Estelle Emily.....	Elsberry.....	Lincoln.
Glasscock, Thomas Tilden.....	Tipton.....	Moniteau.
Goodson, John Virgil.....	New Cambria.....	Macon.
Gordon, Sadie Long.....	Columbia.....	Boone.
Gordon, Nellie Madge.....	Columbia.....	Boone.
Gordon, Laura Virginia.....	Columbia.....	Boone.
Greene, Homer Cooper.....	Ireland, <i>Ind.</i>	
Griffin, Ernest Elmer.....	Columbia.....	Boone.
Griffith, Florence Fisher	Columbia.....	Boone.
Harra, Frederic Christian.....	Buckner.....	Jackson.
Harrison, Carl.....	Mexico.....	Audrain.
Harrison, Jane Annetta.....	La Plata	Macon.
Hechler, Fred George.....	Dalton.....	Chariton.
Henderson, Mabel.....	Columbia.....	Boone.
Henderson, Mary Evelyn.....	Columbia.....	Boone.
Hoffman, Dimmitt Heard.....	Sedalia.....	Pettis.
Howell, Daniel Voorhees.....	Brookfield.....	Linn.
Hurwitz, Walle Abraham.....	Joplin.....	Jasper.
Ikenberry, Josephus Henry.....	Sedalia.....	Pettis.
Ilgenfritz, Will McNair.....	Sedalia.....	Pettis.
Imbler, Lewis James.....	Kirksville.....	Adair.
Jackson, Andrew, Jr.....	Carrollton.....	Carroll.
Jacobs, Floyd Emory.....	Kansas City.....	Jackson.
Jesse, Mary Polk	Columbia.....	Boone.

Name.	Postoffice.	County.
Jesse, Caroline Elizabeth.....	Columbia..	Boone.
Jesse, Mary Daniel.....	Litwalton, Va.	
Johnson, Horace Asahel.....	Brookfield.....	Linn.
Johnston, Margaret Bass.....	Columbia.....	Boone.
Jones, Robert William.....	Magdalena, N. M.	
Kaune, Quintus Arthur.....	Butler.....	Bates.
Kautz, James Otis.....	Hamilton.....	Caldwell.
Kell, Charles Lafayette.....	Poplar Bluff.....	Butler.
Kelly, Lota Elizabeth.....	Kansas City.....	Jackson.
Kennedy, Terrence Orlando.....	Poplar Bluff.....	Butler.
Kennedy, Hattie Mae.....	Vandalia.....	Audrain.
Knepper, Florence Burr.....	Carthage.....	Jasper.
Lasley, Henry Russell.....	Shelbina.....	Shelby.
Lewis, Carl Orville.....	Columbia.....	Boone.
Lhamon, Ruskin.....	Columbia.....	Boone.
Lipscomb, Virginia Lee.....	Columbia.....	Boone.
Loeb, Leo.....	Rich Hill.....	Bates.
Long, James Frank.....	Hannibal.....	Marion.
Lowell, Ora Walter.....	Trenton.....	Grundy.
Maddox, George Finley.....	New London.....	Ralls.
Mahan, Dulaney.....	Hannibal.....	Marion.
Manly, Basil Maxwell.....	Lexington.....	Lafayette.
Marsh, Annie Elizabeth.....	Columbia.....	Boone.
Martin, Joshua Blaire.....	Blue Mound, Ill.	
Mauro, Julia Baker.....	Sappington.....	St. Louis.
Miller, Edwin Burch.....	Boonville.....	Cooper.
Moore, Ethel Clare.....	Edinburg.....	Grundy.
McCormick, Harriett Odella.....	St. Louis City.	
McCormick, Maude.....	Hardin.....	Ray.
McCune, Eula.....	Bowling Green.....	Pike.
McCune, Oke.....	Frankford.....	Pike.
McNaught, Robert.....	Washington, D. C.	
McPheeters, Sherma.....	Benton.....	Scott.
Nacy, Frances Winifred.....	Jefferson City.....	Cole.
Newkirk, Samuel Drake.....	Tipton.....	Moniteau.
Newman, Sylvia Louise.....	Breckenridge.....	Caldwell.
Otis, Merrill Edward.....	Hopkins.....	Nodaway.
Peck, Henry Gordon.....	Columbia.....	Boone.
Perkins, Susie Adair.....	Columbia.....	Boone.
Pirkey, Russeli Johnson.....	St. Joseph.....	Buchanan.
Pirkey, Everett Layton.....	St. Joseph.....	Buchanan.
Plunkett, Frank Willis.....	Columbia.....	Boone.
Poor, Gail Morrill.....	Columbia.....	Boone.
Powers, Candace.....	Paris.....	Monroe.
Prentis, Hally Morrison.....	St. Louis City.	
Price, Lakenan.....	Columbia.....	Boone.
Pulliam, Susie.....	Deer Park.....	Boone.
Quayle, Maude Cannell.....	Columbia.....	Boone.
Railsback, Homer.....	Hamilton.....	Caldwell.
Richards, Elizabeth.....	Columbia.....	Boone.
Rickey, Jean Salome.....	Columbia.....	Boone.
Robinson, Florence R.....	Maryville..	Nodaway.
Robinson, Charles Edward.....	Joplin.....	Jasper.
Rowley, Grayce Marie.....	Louisiana.....	Pike.
Schmitt, Clara.....	Lowry City.....	St. Clair.
Scurlock, Lillian Mary.....	Columbia.....	Boone.
Searcy, Chloe.....	Columbia.....	Boone.
Seares, Harry Lesley.....	Corona, Cal.	
Sears, Mary Elizabeth.....	LaPlata.....	Macon.
Seymour, Elba.....	Drexel.....	Cass.
Shelton, Pearl Trevey.....	Windsor.....	Henry.
Shelton, Clara Lillian.....	Windsor.....	Henry.
Shelton, Charles William.....	Lancaster.....	Schuyler.
Silsby, Harry Dozier.....	Springfield.....	Greene.
Smith, Mary Madeline.....	Glenwood.....	Schuyler.
Smith, Harry Alonzo.....	Bunceton.....	Cooper.

Name.	Postoffice.	County.
Snyder, Edith Logan	Hannibal.....	Marion.
Sparks, Raymond Elmore	Kansas City.....	Jackson.
Squire, Mabel Annie	Joplin	Jasper.
Stean, Saidee May	Arrow Rock	Saline.
Stickney, James Earl	Carthage	Jasper.
Stout, John Arthur	Kansas City.....	Jackson.
Talbot, Thomas Ward	St. Louis City.	
Taylor, Robert Erskine.....	Miami.	Saline.
Terrell, Ted Allen	Macon City	Macon.
Thompson, Rodney Emmet.....	Nevada	Vernon.
Thompson, Daisy	Bevier.....	Macon.
Townsend, Will	Bolivar	Polk.
Trewett, Fred Lee	Maryville	Nodaway.
Tuggle, Floyd Smith	Gallatin	Daviess.
Twyman, Elmer Davis.....	Independence	Jackson.
Wayman, Harry Selwyn	Kansas City.....	Jackson.
Wells, William Ernest... ..	Maryville	Nodaway.
White, Hazel.....	Norborne	Carroll.
Whitmore, George Rowe.....	Old Orchard	St. Louis.
Wilder, Ralph Barnabas	Ladonia	Audrain.
Williams, Jesse Raymond	Noble, <i>Ill.</i>	
Williams, Percy	Joplin	Jasper.
Williams, Harold Spencer	Warrensburg.....	Johnson.
Wilson, Thomas Buffington.....	Indian Mound, <i>La.</i>	
Winn, Beatrix... ..	Independence.....	Jackson.
Wood, Diller Clement.....	Kansas City... ..	Jackson.
Woodward, Edward Homer.....	Brunswick	Chariton.
Wright, Kirby Smith.....	Ashley	Pike.

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Special Students.

Allen, Jessie May	Wichita, <i>Kan.</i>	
Allen, Frances Eugene.....	Barry, <i>Ill.</i>	
Allen, Mary Swenson	Columbia	Boone.
Allen, May Edyth	Danbury, <i>Conn.</i>	
Arnold, Mrs. Medora Castlio.....	San Jose, <i>Cal.</i>	
Arthur, Sylvester Irvin	Union City, <i>Ind.</i>	
Bassett, Mrs. Sara Elizabeth	Columbia	Boone.
Bedford, Lucy	Deer Park.....	Boone.
Bell, Elizabeth Lucile	Hatch	Ralls.
Bird, Mrs. Carrie Reid	Columbia	Boone.
Botts, Bennie.....	Columbia	Boone.
Botts, Frances Virginia	Columbia	Boone.
Burgess, Mrs. Maggie.....	Pleasant Hill	Cass.
Bush, Estelle	Columbia	Boone.
Butterfield, Mary Marsh	Columbia	Boone.
Clarahan, Catherine Elizabeth	Salt Lake City, <i>Utah.</i>	
Cook, William Hutchinson	Columbia	Boone.
Cresap, Mrs. Martha Payne.....	Columbia.....	Boone.
Crisp, Joseph Shelby	Kansas City.....	Jackson.
Crump, Ella Julia	Hallsville	Boone.
Cummings, Anna Victoria.....	Gower	Clinton.
Daniels, Mrs. Louise Grimmer	Alto, <i>Mich.</i>	
Dearing, Frank Winchester	Columbia	Boone.
Ditherage, Rachel Lewis.....	New York City, <i>N. Y.</i>	
Dorsey, Harry Shreve, Jr.....	Gillespie, <i>Ill.</i>	
Finley, James Rufus.....	Excelsior Springs ...	Clay.
Fitch, Mrs. Louisa Norwood	Columbia	Boone.
Fleming, Adele	Columbia	Boone.
Foglesong, Lenna M.....	Lamar	Barton.
Frazier, Oliver	Grand Centre	Randolph.
Gerken, Emaline Anna..	Hannibal.....	Marion.
Gerould, Mrs. Mary Chamberlain	Columbia	Boone.
Graham, Robert.....	Honeywood, <i>Ontario</i>	
Gruner, Caroline Frances	St. Louis City.	
Harris, Albert Sidney	Weston.....	Platte.

Name.	Postoffice.	County.
Harshe, Robert Bartholow.....	Columbia	Boone.
Henderson, Louise	Nashville, <i>Tenn.</i>	
Hetherington, Mrs. Daisy Alford....	Columbia	Boone.
Hinton, Mrs. Edward Wilcox	Columbia.. ..	Boone.
Hodge, Lona Glenn	Columbia	Boone.
Huggins, Augusta J.	Columbia	Boone.
Johnston, Anna Baker	Liberty.....	Clay.
Jones, Mrs. Clara Thompson	Columbia	Boone.
Jones, Mrs. Ida May	Columbia	Boone.
Jones, Abner	Columbia	Boone.
Kahn, Gussie.....	Columbia	Boone.
Kerr, Caroline V ..	Columbia	Boone.
Lakeman, Katherine	Columbia	Boone.
Laws, Lucy Rhoda.....	Harrodsburg, <i>Ky.</i>	
Lewis, Eleanor	Moberly.	Randolph.
Lockwood, Marvin Barnett	Columbia	Boone.
Macfarlane, Mrs. Alice O'Rear.....	Mexico	Audrain.
Meador, Eli Newton	Cassville	Barry.
Meyer, Max	Columbia	Boone.
Miller, Mrs. Max Wilcox	Columbia	Boone.
Mills, Clara U.	Memphis.....	Scotland.
Moore, Mrs. William Thomas	Columbia	Boone.
Moore, Mrs. Richard Bishop	Columbia	Boone.
Moore, Bess Margaret.....	Oran... ..	Scott.
Morehead, Lucy Olive	Columbia	Boone.
Murry, Mrs. Jerre Herbert	Columbia.....	Boone.
McConathy, Mildred Dale.....	Columbia.....	Boone.
O'Rear, Miranda Allen.....	Sweet Springs.....	Saline.
Peeler, Eva Mae	White's Store	Howard.
Rawlins, Robert Ernest ..	Buffalo... ..	Dallas.
Reaborn, Nelle Maud.....	Denver, <i>Ill.</i>	
Rodhouse, Thomas Jacob ...	Columbia.....	Boone.
Rodhouse, Mrs. Melissa Jesse	Columbia.....	Boone.
Rogers, Warren.....	St. Joseph.....	Buchanan.
Romjue, Maude Nickell.....	Love Lake	Macon.
St. Clair, Mrs. Luella Wilcox.....	Columbia	Boone.
Simmons, Emma Gertrude	Berryville, <i>Ark.</i>	
Stafford, Olive	Buffalo	Dallas.
Steele, Eva	Carmi, <i>Ill.</i>	
Stewart, Mrs. Estelle Williams.....	Columbia.....	Boone.
Stone, Josiah Dozier	Columbia	Boone.
Switzler, Mrs. Ellen Runyan....	Columbia	Boone.
Taylor, Suzanne Shelby.....	Columbia	Boone.
Thompson, Mrs. Libbie Edmonstone ..	Columbia	Boone.
Trenholme, Mrs. Ethel Hurst	Columbia.....	Boone.
Walker, Bettie	Fayette	Howard.
White, Mrs. Elizabeth Lingle	Columbia	Boone.
Whitmer, Mrs. Helen Crozier	Columbia	Boone.
Williams, Maude	Cameron	Clinton.
Wood, Henry... ..	Mondamin, <i>Iowa.</i>	
Wooldridge, Lula Belle	Boonville.....	Cooper.

LIST OF STUDENTS.

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Department of Education.

Name.	Postoffice.	County.
Abernathy, Robert Turner.....	Pierce City	Lawrence.
Allen, Elmer Jackson	Dadeville.....	Dade.
Allinger, Henry Wesley.....	Bushton, <i>Kan.</i>	
Arnold, Charles.....	Ashland.....	Boone.
Arnold, Mrs. Medora Castlio.....	San Jose, <i>Cal.</i>	
Arnold, Marcia Louise.....	San Jose, <i>Cal.</i>	
Babb, Virginia Elizabeth.....	Wichita, <i>Kan.</i>	
Babb, Minerva May.....	Wichita, <i>Kan.</i>	
Babcock, Frank Larue.....	Moberly	Randolph.
Bacon, Edith Elizabeth	Kidder.....	Caldwell.
Baird, James Claud	Redding, <i>Iowa.</i>	
Baker, Beulah Norvell	Columbia.....	Boone.
Barnes, Maude.....	Ft. Smith, <i>Ark.</i>	
Barnett, Mary Jesse.....	Columbia.....	Boone.
Bedford, Lucy	Deer Park	Boone.
Biggs, Everett Elmo	Ashland	Boone.
Bird, Mrs. Carrie Reid.....	Columbia.....	Boone.
Bodenheimer, Sophie	Jefferson City	Cole.
Borgstadt, Harry	Concordia	Lafayette.
Branham, Madeline	Columbia	Boone.
Brewer, Lake	Ridgeway	Harrison.
Bristol, Alice Josephine	Webster Groves	St. Louis.
Brooks, Clyde	Columbia.....	Boone.
Brown, Harlan Le Roy	Trenton	Grundy.
Brown, Herbert Everly	Trenton	Grundy.
Burruss, Marion.....	Columbia.....	Boone.
Canada, Charles Walden	Shafter.....	Linn.
Claypool, Virginia Meredith	Muncie, <i>Ind.</i>	
Cochel, Charlotte Calvin.....	Columbia.....	Boone.
Cochel, Mary Alice	Columbia.....	Boone.
Cole, Charles Arthur.....	Quaker.....	Washington.
Collins, Charles	Kirkwood	St. Louis.
Comer, Edward Smith	Mound City	Holt.
Conway, Mary Ellen.....	Vandalia	Audrain.
Coontz, Laura.....	Vandalia	Audrain.
Cosby, Byron	Butler	Bates.
Craig, James Herman.....	Cyrene	Pike.
Dashiell, Laura Henry.....	Columbia.....	Boone.
Davis, Homer Jason	Miller	Lawrence.
DeBolt, Edith Lorestine.....	Chillicothe.....	Livingston.
Denton, Clarabel.....	Kansas City	Jackson.
Deziel, Raymond	Barre, <i>Vt.</i>	
Divers, William Perry	Auxvasse.....	Callaway.
Donnell, Forrest C	Maryville.....	Nodaway.
Duvall, Jennie Adelina.....	Harrisonville	Cass.
Edwards, Eliza Russell	Centralia	Boone.
Fields, Grace	Fayette.....	Howard.
Fisher, Russell Alvin	St. Louis City.	
Fleming, Edwin D. Rush	Columbia.....	Boone.
Foglesong, Lenna M.....	Lamar.....	Barton.
Fore, Harry Franklin	Gentryville	Gentry.
Franse, Rusha May	Lisle.....	Cass.
Frieze, Everett	Bona	Dade.
Gale, Henry Lee.....	Fredericktown	Madison.
Gentry, Richard White	Sedalia	Pettis.
Gilleland, Anna	Harrisonville	Cass.
Gray, Laura Lucile	Columbia.....	Boone.
Gray, Nellie.....	Columbia.....	Boone.
Hageman, George W.....	Fitzgerald, <i>Ga.</i>	
Hamilton, Goldy Mitchell	Dwight, <i>Ill.</i>	
Harris, Albert Sidney.....	Weston	Platte.
Harshe, Robert Bartholow.....	Columbia	Boone.
Hoffman, Luella D.....	Sedalia	Pettis.
Huggins, Augusta J.....	Columbia	Boone.

Name.	Postoffice.	County.
Irvine, Ernest Albert	Vandalla	Audrain.
Jackson, Andrew, Jr.	Carrollton	Carroll.
Johnson, Grace G.	Hamilton	Caldwell.
Kelsey, Fred.	Farmington, <i>Wash.</i>	
Kennedy, Gertrude Sarah	St. Louis City.	
Koch, Clara M. B.	La Grange	Lewis.
Landon, James Erocia	Marshall	Saline.
Leaphart, Charles William	Brookfield	Linn.
Lewis, Mildred Durette	Columbia	Boone.
Lockwood, Marvin Barnett	Columbia	Boone.
Lowe, Collier Alden	Mokane	Callaway.
Lowry, Ethelyn Margaret	Walker	Vernon.
Luckey, Dennis Armstrong	Longtown	Perry.
Marsh, Annie Elizabeth	Columbia	Boone.
Massie, Alice Ethel	Raymore	Cass.
Miller, William Frederick	Queen City	Schuyler.
Moore, Henry Thomas	Moberly	Randolph.
Morehead, Lucy Olive	Columbia	Boone.
Moulton, Ella Lee	King City	Gentry.
Myers, Robert Lee	Everton	Dade.
McCaleb, Rebecca Isabel	Tarkio	Atchison.
McCarty, Amy Rowena	Hannibal	Marion.
McConathy, Mildred Dale.	Columbia	Boone.
McGhee, Alma Myrtle	Grandin	Carter.
Nacy, Frances Winifred	Jefferson City	Cole.
Newkirk, Cora Matilde	LaBelle	Lewis.
Nowell, Frances R.	Columbia	Boone.
O'Connor, Tom Edward	Maryville	Nodaway.
Packard, Eva Lorena	Cameron	Clinton.
Parker, Myrtle	Columbia	Boone.
Pittman, Maude Lillian	Independence	Jackson.
Plunkett, Frank Willis	Columbia	Boone.
Powers, Candace	Paris	Monroe.
Raybourn, Paul Drennan	Butler	Bates.
Ridgeway, George Walter	Clark	Randolph.
Rowley, Grayce Marie	Louisiana	Pike.
Russell, Walter Clarence	Columbia	Boone.
Schlierholz, Flora Mary	Little Rock, <i>Ark.</i>	
Scott, Pryor Templeton	Richards	Vernon.
Searcy, Laura Anita	Columbia	Boone.
Setzler, Edward Allan	Kansas City	Jackson.
Shellenberger, Walter Jeremiah	Mound City	Holt.
Shelton, Charles William	Lancaster	Schuyler.
Singleton, Martha R.	Paris	Monroe.
Sloop, Charles J.	Queen City	Schuyler.
Smith, Gene Irvin	Monticello, <i>Kan.</i>	
Smith, Jesse Agnes	Bloomington, <i>Ind.</i>	
Snyder, Edith Logan	Hannibal	Marion.
Sparks, Raymond Elmore	Kansas City	Jackson.
Steele, Eva	Carmi, <i>Ill.</i>	
Steele, Oliver Lee	Carmi, <i>Ill.</i>	
Steele, Charles Dugan	Norton	Saline.
Stewart, Mrs. Estelle Williams	Columbia	Boone.
Stoner, Carolyn	Kansas City	Jackson.
Stump, Maggie Lou	Nevada	Vernon.
Tennyson, Luther Wesley	Belgrade	Washington.
Tyler, Earle Graves	Howell	St. Charles.
VanderVeer, William Tenent	King City	Howell.
Walker, Mary Shore	Columbia	Boone.
Ward, Walter Delbert	Skidmore	Nodaway.
Westlake, Dixie	Columbia	Boone.
Westlake, Pearl	Columbia	Boone.
White, Robert Ernest	Harrisonville	Cass.
White, Mrs. Elizabeth Lingle	Columbia	Boone.
Whitmer, Mrs. Helen Crozier	Columbia	Boone.
Wiley, Frank Leslie	Ridgeway	Harrison.

Name.	Postoffice.	County.
Williams, Maude.....	Cameron	Clinton.
Williams, Olive.....	Carthage	Jasper.
Winslow, Anna Elizabeth.....	Kansas City	Jackson.
Winslow, Margaret White.....	Kansas City ..	Jackson.
Winslow, Mary Olive	Kansas City	Jackson.
Wood, W. Logan.....	Bolckow.....	Andrew.
Woods, Herbert Spencer.....	Versailles.....	Morgan.
Wronker, Charlotte.....	Marshall.....	Saline.
Yunker, Blanche	Louisiana ..	Pike.
Zimmerman, Alice.....	East St. Louis, Ill.	
Zollinger, John H.....	Otterville.....	Cooper. —141

Law Department.

Name.	Postoffice.	County.
<i>Junior Class—Three Years' Course.</i>		
Anamosa, George Willis.....	Sedalia	Pettis.
Barry, Norman Clarke.	Stroudsburg, Pa.	
Baskerville, Lucien Bertram	Appleton City.....	St. Clair.
Berry, James Eustace.....	Unionville.....	Putnam.
Bottom, Claude Bernard.....	Breckenridge.....	Caldwell.
Davis, Joseph Thomas.....	Berger ...	Franklin.
Doll, Alva Chester	Hamilton.....	Caldwell.
Doughty, John Alfred.	Farmington	St. Francois.
Finley, Ralph Tilden	Greenfield	Dade.
Fulton, Clarence Fleetwood.....	Patterson.....	Wayne.
Hall, Morris VanEvrle.....	St. Joseph	Buchanan.
Haw, Joseph Lindsay, Jr ...	Farmington ...	St. Francois.
Henwood, Berryman.	Oakwood.....	Marion.
Hicks, Virgil.....	Boles, Ky.	
Ingalls, Thomas Garfield.....	Lowell, Mass.	
Kahn, Jesse Jacob.....	Bigelow	Holt.
Kenton, Joseph Wheeler..	Kansas City.....	Jackson.
Landon, James Erocia ..	Marshall.....	Saline.
McConnell, Rufus Ward.....	Greenfield.....	Dade.
Napton, John Reid.	Marshall	Saline.
Owen, Frederick Benjamin.....	Clinton	Henry.
Price, Robert Beverly, Jr.....	Columbia	Boone.
Robinson, Thomas Wright	Macon.....	Macon.
Romjue, Milton Andrew.....	Lovelake..	Macon.
Rose, Marion Amos	Benton, Ill.	
Rucker, Alvin, Jr.....	Farmington	St. Francois.
Sawyers, William Gaston	Maryville.....	Nodaway.
Schuermeier, William Frederick.....	St. Louis City.	
Schulze, Fred William J.....	Vandalia	Audrain.
Stafford, Nean	Buffalo	Dallas.
Storm, Fred Erwin	Maryville... ..	Nodaway.
Summerville, Robert Oscar.....	Chillicothe..	Livingston.
Thompson, Frank Abner, Jr.	St. Louis City.	
Thurman, Harold Clarke	Lamar.....	Barton.
Williams, Curtis.....	Spring Garden, Ill.	
Williamson, John Robert.	New Hampton	Harrison.
Wulff, Hans Jacob....	St. Louis City.	
<i>First Year Class—Three Years' Course.</i>		
Adams, Carl Herbert.....	Buckner.....	Jackson.
Alexander, George Forest.....	Gallatin	Daviess.
Anderson, Roscoe F.....	LaBelle.....	Lewis.

Name.	Postoffice.	County.
Blaine, William Webster.....	Orrick.....	Ray.
Boulware, George William W.....	Wanamaker ..	Saline.
Bryant, Joseph Franklin, Jr.....	Bethany	Harrison.
Burch, Ollie Helen.....	Hopkins	Nodaway.
Burk, Milton Clarence.....	Tipton.	Moniteau.
Caldwell, Fred Blaine.....	White Oak, Iowa...	
Carter, Asa Leroy	Roby	Texas.
Catron, Thomas Kent	Kansas City	Jackson.
Chamberlain, Alonzo Walter.....	Spencer, Iowa.	
Chastain, DeWitt Clare.....	Hume.....	Bates.
Cohen, Edwin S ..	St. Joseph	Buchanan.
Cole, Norman John	Quaker	Washington.
Collier, Henry Allison	Columbia	Boone.
Cottrill, Bernit Clyde	Savannah	Andrew.
Davis, Charles B.	Oakwood ..	Ralls.
Dorsey, Machir January	Gillespie, Ill.	
Durfee, Edward Eugene.....	Falls City, Neb.	
Fish, Sherman Eugene... ..	Bolivar ..	Polk.
Frampton, Alfred Clement	Normandy....	St. Louis.
Gentry, Reuben Joel.....	Sedalia	Pettis.
Gibson, Paul Hunter... ..	Elsberry	Lincoln.
Gipson, Ennis Hubert.....	Lagonda.....	Chariton.
Green, Ernest Abner....	Desoto.....	Jefferson.
Guitar, Abiel Leonard ..	Columbia.....	Boone.
Hedrick, Lawrence Hiskell.....	Columbia.....	Boone.
Hewes, Clarence.....	Indianapolis, Ind.	
Holaday, William Perry..	Georgetown, Ill.	
Houck, Rudolph Senn	Bloomfield	Stoddard.
Johnston, Roy Meredith.....	Ft. Smith, Ark.	
Lhamon, Burgess Frank. .	Columbia	Boone.
Livingston, Frank Craig Haskell	Elk Prairie	Phelps.
Maddox, Roy Oswald.....	Bucklin.....	Linn.
Martin, William Henry.....	St. Joseph.....	Buchanan.
Nelson, Earle Fontaine	Milan	Sullivan.
Neville, Percy Lee	Marshall..	Saline.
Newman, Charles Frank	Lockwood.....	Dade.
North, Edward Scarritt.....	Kansas City	Jackson.
Northcutt, Arthur Harrison.....	Winters, Cal.	
Nugent, James Edward	Paris	Monroe.
Potter, James Arthur ..	Mt. Vernon.....	Lawrence.
Reid, James D.	Slater.....	Saline.
Rothwell, James Raymond.....	Warrensburg.....	Johnson.
Sailor, Malcolm Everett	Montgomery City...	Montgomery.
Shannon, Easton Adair....	Mt. Carmel.....	Audrain.
Sloop, Charles J.....	Queen City	Schuyler.
Sommer, George Washington.....	Huntsville, W. Va.	
Thompson, Gilbert Stephen.....	Tablequah, I. T.	
Welborn, Arthur Tarance.....	Bloomfield ..	Stoddard.
Williams, Francis Emmett	Irondale.....	Washington.
Wilson, Charles Clarence	Shamokin, Pa.	
<i>Special Students.</i>		
Bothwell, Lawrence	Sedalia	Pettis.
Fair, Ellis Hamilton.....	Centerton, Ark.	
Higbee, Walter A	Lancaster ..	Schuyler.
Hoag, William Elery	West Union	Cass.
Hockenhull, Andrew Walter.....	Polk ..	Polk.
Hukreide, Theodore . .	Jonesburg ..	Montgomery.
Hull, George Young.....	St. Joseph.....	Buchanan.
Jeffress, Edna Florence	Edwardsville, Ill.	
Johnson, John Harvey ..	Clearmont	Nodaway.
Kautz, Leslie Ross	Hamilton.....	Caldwell.
Murrell, Fred Emmett ..	Lancaster.....	Schuyler.
Oliver, Robert Burett, Jr.,	Cape Girardeau	Cape Girardeau.
Pearcy, Elmer Egerton.....	Thornfield.....	Ozark.

Name.	Postoffice.	County.
Quindry, Sylvester Eugene	Fraser, Ill.	Buchanan.
Rogers, Warren	St. Joseph	
Smith, William	Glasgow, Ky.	Polk.
Upton, Earnest Dyer	Bolivar	
Watson, William Francis.	New London	
		Ralls. —18

Medical Department.

Name.	Postoffice.	County.
<i>Fourth Year Class.</i>		
Baker, Karl Edgar	Carthage	Jasper.
Bedford, Stephen Vincent	Columbia	Boone.
Bell, Elexious Thompson	Hatch	Ralls.
Cassity, George Henry	Purdin	Linn.
Cole, William Marvin	Sedalia	Pettis.
Crockett, James Anderson	Stanberry	Gentry.
Freudenberger, Henry Clay	Clarksburg ...	Moniteau.
Kaps, Frederick Otto	Oshkosh, Wisc.	
Moore, Thornton Easley	Edinburg. ...	Grundy.
Nichols, Arlee Isbell	Ashland	Boone.
Payne, Harry Claucet	Paris	Monroe.
Potter, Peter	Columbia	Boone.
Stahl, William Fred	Cleveland, Ohio.	
Walker, John C.	Neosho	Newton. —14
<i>Third Year Class.</i>		
Brunner, Ethan Edward	Krumsville, Pa.	
Campbell, Albert James	Clinton	Henry.
Clark, Chester Harlan	Beloit, Wis.	
Colley, Elijah Augustus	Plattsburg	Clinton.
Cowgill, Eugene Park	Oak Valley, Kan.	
Haas, Harry R.	Hills Grove, Pa.	
Johnson, Carroll Allen	Columbia	Boone.
Jones, Urban Louis	Troy, Ala.	
McMurtry, Milton Scott	Telluride, Col.	
Rayl, John Edward	Crocker	Pulaski.
Willier, Albert Francis	Springfield ..	Greene.
Woods, William Perry	Clarinda, Iowa.	—12
<i>Second Year Class.</i>		
Albright, Clifton C.	West Shelley, N. Y.	
Antonowsky, Benjamin	New York, N. Y.	
Brooks, Clyde	Columbia	Boone.
Brown, Charles Arthur	Kansas City ..	Jackson.
Brunjes, Ernest August	Warsaw	Benton.
Cooper, Joseph Quintus	Columbia	Boone.
Cordonier, Alfred Edward	Palermo, Kan.	
Crouch, Clarence Clinton	Columbia	Boone.
Dunaway, Janie English	Caplinger Mills ..	Cedar.
Gullion, Omar Ray	Emerson	Marion.
Hawkins, George Giles	Paris	Monroe.
Henderson, Charles Forest	Paris	Monroe.
Hume, Leslie Walker	Armstrong	Howard.
Jeffreys, Oliver Anderson	Weiser, Idaho.	
Kistler, Herbert Daniel	Clinton	Henry.
Miller, Robert Mayberry	Sugar Tree	Carroll.
Miller, John Frederick	Olivet, S. D.	

Name.	State.	Postoffice.
Montgomery, Charles Francis	Greenfield.....	Dade.
McAlester, Andrew Walker, Jr.....	Columbia.....	Boone.
McCurdy, Edgar Henry.....	Clinton, <i>Mass.</i>	
McGill, Caroline.....	Lebanon.....	Laclede.
Nelson, James Everett	Volant, <i>Pa.</i>	
Santiago, Jose Manuel	Dorada, <i>Porto Rico.</i>	
Scholz, Grace Lillian.....	St. Louis City.	
Taake, Edmund Felix.....	Black Jack.....	St. Louis.
Thompson, Richard Samuel.....	Greencreek, <i>Idaho.</i>	
Woodside, Edward Everett.....	Creal Springs, <i>Ill.</i>	
Woodson, Thomas Dupuy.	Richmond	Ray. —28
<i>First Year Class.</i>		
Battersby, Richard Stanley.....	Sedalia	Pettis.
Childers, Lucius Franklin.....	Berlin	Gentry.
Cochrane, Phillip Sidney.....	Antrim, <i>N. H.</i>	
Daley, Lyle Miner	Hamilton.....	Caldwell.
Edwards, Robert Stone	O'Fallon.....	St. Charles.
Frazier, Leland.....	Grand Centre..	Randolph.
Goodson, William Hammack.....	New Cambria.....	Macon.
Hall, Cleveland	Independence.....	Jackson.
Jarvis, Harry Dwight..	Rose Hill, <i>Iowa.</i>	
Kunz, Frank Oliver.....	Aspen, <i>Col.</i>	
Lhamon, Ruskin.....	Columbia.....	Boone.
Loeb, Virgil.....	Columbia.....	Boone.
Lucas, John Hodgen.....	Mendon	Chariton.
Martin, John Wesley.....	Blue Mound, <i>Ill.</i>	
Montgomery, Thomas Bell.....	Columbia.....	Boone.
Morrow, Walter Lloyd.....	Kansas City.....	Jackson.
MacCabe, Richard Stephen	Springfield.....	Greene.
Reid, Turner Wilson.....	Slater	Saline.
Riggs, John Max.	Winchester, <i>Ill.</i>	
Robertson, Alta Abel	Clarksburg	Moniteau.
Rodes, Charles Bradford, Jr.,	Sedalla	Pettus.
Seever, Ruth.	Osceola ..	St. Clair.
Talbot, Clarence Weill.....	Nevada.....	Vernon.
Tapscott, Samuel Thomas, Jr.,	Searcy, <i>Ark.</i>	
Thompson, Rodney Emmet	Nevada.....	Vernon.
Ware, Sterling Ansel.....	Ashland, <i>N. C.</i>	
Waters, Grover Cleveland..	Chillicothe.....	Livingston.
Weber, Charles Leonard.....	Cairo, <i>Ill.</i>	
Wilhelm, Dorris E.....	Braymer.....	Caldwell.
Wilson, Thomas Buffington ..	Indian Mound, <i>La.</i>	
Young, James Rogers	Due West, <i>S. C.</i>	—81
<i>Special Students.</i>		
Crow, George Washington.....	Milagro, <i>Ecuador.</i>	
Hertig, Mrs. Marion Willis	Columbia.....	Boone.
Hoecker, Charles Henry	St. Louis City.	
Kampschmidt, August William.....	Cedar Fork.....	Franklin.
Nulton, Ida May.....	Columbia	Boone.
Todd, George Oscar.....	Richmond ..	Ray.
Tyree, Fred.....	Carthage	Jasper. —7

College of Agriculture and Mechanic Arts.

A. School of Agriculture.

Name.	Postoffice.	County.
<i>Senior Class.</i>		
Doughty, Job Marcus.....	Farmington ..	St. Francois.
Kraft, Walter Mitchell	St. Louis City.	
Parkhurst, Albert Early... ..	Sweet Springs.	Saline.
Rhodes, Edward Dean	Webster Groves....	St. Louis.
Winchester, Luther.....	Essex.....	Stoddard. —5
<i>Junior Class.</i>		
Bradley, Harry Everett.....	St. Louis City.	
Crouch, Andrew Monroe, Jr.....	Columbia	Boone.
Gray, Daniel Thomas.....	Stanberry	Gentry.
Harvey, William Thomas	Prairie Hill.....	Chariton.
Hurst, Walter.....	Kansas City	Jackson.
Lacuffert, Walter Fred	St. Louis City.	
Moree, Edward Emanuel	Baker	St. Clair.
Thieman, Lewis William.....	Aullville.....	Lafayette. —8
<i>Sophomore Class.</i>		
Allen, Archibald Murray.....	Columbia	Boone.
Chandler, William Henry.....	Butler	Bates.
Cline, Lewis Edgar.....	Trenton.....	Grundy.
Cottler, Hugh Montgomery.. ..	Skidmore.....	Nodaway.
Gale, Henry Lee.....	Fredericktown	Madison.
Gates, Daniel Taylor	Montrose.. ..	Henry.
Hechler, Charles Henry	Dalton.....	Chariton.
Hill, John Benjamin	Columbia	Boone.
Marshall, Lynn Edward.....	Sikeston	Scott.
Price, James Newton	Trenton	Grundy.
Rouse, Birdie Laforce....	Browns Station.....	Boone.
Schlie, Enrique	Santa Fe, Arg. Rep.	
Standley, William May	Carrollton	Carroll.
Tarter, Laban Moore	Trenton	Grundy.
Vera, Joseph M.....	Santa Fe, Arg. Rep.	—15
<i>Freshman Class.</i>		
Bouldin, Leonard Lee	Hughesville	Pettis.
Caldwell, Edwin Fletcher	Burlington Junction	Nodaway.
Childers, Lucius Franklin.....	Berlin	Gentry.
Ensign, William Guy	Cameron.. ..	Clinton.
Estill, Richard Gentry.. ..	Sedalia.....	Pettis.
Foulds, James Cleveland.....	Higginsville	Lafayette.
Hewitt, Joseph Lee	Kansas City	Jackson.
Jackson, Lena Rebecca.....	Columbia.....	Boone.
Johnston, Emily Keating.....	St. Louis City.	
Malone, George Henry.	Bone Gap, Ill.	
Mudd, Grace Belle.	Drexel.....	Cass.
Mullins, Benjamin Harrison	Linneus.....	Linn.
Murphy, James Henry	Elsberry.....	Lincoln.
Rouse, Lester	Browns Station.....	Boone.
Ryley, Eby.....	Kansas City	Jackson.
Shaw, Mayme.....	Columbia.....	Boone.
Starr, Chester Gibbs.....	Centralia.....	Boone.
Strawn, Joseph Loris	Philadelphia, Pa.	
Womble, Ewen Ernest....	Elsberry.....	Lincoln.
Woods, Lee Aker.....	Smithville	Clay. —20

Name.	Postoffice.	County.
McLemore, Clyde.....	Everton	Dade.
Newkirk, Corn Matilde.....	La Belle.....	Lewis.
Newman, John Henry.....	Fontainebleau	Andrew.
Pearcy, Elmer Egerton.. . . .	Thornfield	Ozark.
Pearman, Will Robert.....	Ashland	Boone.
Penter, Benton Johnston	Ashland.....	Boone.
Pierce, Harry Llewellyn	Columbia.....	Boone.
Potts, Roscoe Fairbanks	Kansas City.....	Jackson.
Price, John Emmet.....	Harrisonville	Cass.
Read, Ella.	Columbia... ..	Boone.
Robertson, David Hiner.....	Mexico	Audrain.
Ross, Charles Griffith	Independence	Jackson.
Ruenzi, Williametta.....	Columbia	Boone.
Russell, Walter Clarence	Columbia.....	Boone.
Sadler, Norman Joseph.....	St. Louis City.	
Sander, Albert Martin.....	Tilsit.....	Cape Girardeau.
Schooling, Lacy Parks	Moberly	Randolph.
Sears, Edward Nelson.....	Deer Ridge	Lewis.
Sears, Herbert Ivison	LaPlata.....	Macon.
Shockley, Maude Alice	Columbia	Boone.
Smith, Gene Irvin	Monticello, <i>Kan.</i>	
Smoot, Willie Isadore	Columbia	Boone.
Snyder, Joseph Conway	Clayton	St. Louis.
Stewart, George Earle	Columbia	Boone.
Stump, Vivian French.....	Nevada.. ..	Vernon.
Terrell, Gussie May.	Macon	Macon.
Underwood, George Arthur.....	Kansas City.....	Jackson.
Ward, James Gordon.....	Balm.....	Cedar.
Ward, Walter Delbert	Skidmore.....	Nodaway.
Wayman, Warrick Allen	Kansas City.....	Jackson.
Weese, William Joshua	Athlestone, <i>Iowa.</i>	
Weinbach, Mendel Pencker.. . . .	St. Louis City.	
Welborn, Arthur Tarance	Bloomfield.....	Stoddard.
Welty, Lois.....	Oregon	Holt.
Westlake, Dixie.....	Columbia.	Boone.
White, Hazel	Norborne	Carroll.
Wiley, Frank Leslie.....	Ridgeway	Harrison.
Williams, Bettie.....	St. Joseph....	Buchanan.
Williams, Olive.....	Carthage	Jasper.
Wilson, Garland.....	Bethany	Harrison.
Winslow, Margaret White.....	Kansas City.....	Jackson.
Winslow, Mary Olive	Kansas City.....	Jackson.
Winslow, Anna Elizabeth	Kansas City....	Jackson.
Wood, Harry Cunningham.....	New London	Ralls.
Woodson, Thomas Dupuy, Jr.....	Richmond.. ..	Ray.
Wright, Anna Elizabeth.....	Norborne....	Carroll.
Wright, Porter	Chilhowee.....	Johnson.
Zumbrunnen, Emile Miles.....	Braymer	Caldwell.

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Freshman Class.

Adams, Wilkie Myrtle.....	Columbia.....	Boone.
Allder, Ettie Mildred.....	Cane Hill.....	Cedar.
Allen, Grace Lillian.....	Dadeville.....	Dade.
Anderson, Harvey Winfred.....	Goodwater.....	Iron.
Anderson, Mac.....	Columbia	Boone.
Arnold, Marcia Louise.....	San Jose, <i>Cal.</i>	
Babb, Virginia Elizabeth	Wichita, <i>Kan.</i>	
Babcock, Frank Larue.....	Moberly.....	Randolph.
Bacon, Edith Elizabeth	Kidder	Caldwell.
Baker, Eula Blythe.....	Sedalia.. ..	Pettis.
Barry, Norman Clarke	Stroudsburg, <i>Pa.</i>	
Battersby, Richard Stanley.....	Sedalia	Pettis.
Bonfoey, Laurance Powers	Unionville	Putnam.
Boyd, Allie	Deepwater	Henry.
Brown, Orville Allen	Monroe City	Monroe.

Name.	Postoffice.	County.
Brown, William Salem	Troy	Lincoln.
Brunjes, Peter Albert.....	Warsaw.....	Benton.
Burns, Rose Ella.....	Omaha, <i>Neb.</i>	
Cannon, James Robert	Harrisonville	Cass.
Carr, Gloria Washington.....	Vandalia	Audrain.
Carroll, Ellen Volumnia.....	Columbia	Boone.
Claypool, Virginia Meredith	Muncie, <i>Ind.</i>	
Cochrane, Phillip Sidney.....	Antrim, <i>N. H.</i>	
Coe, Montelle Galbreath	San Francisco, <i>Cal.</i>	
Cole, Charles Arthur.....	Quaker.....	Washington.
Cole, Winfred Bryan.....	Quaker.....	Washington.
Conger, Emma Mae.....	Columbia.....	Boone.
Conley, John Winfield.....	Hamilton	Caldwell.
Covington, Ruth Olive.....	Dexter	Stoddard.
Crouch, Menta Leslie.....	Columbia.....	Boone.
Dalby, John R.....	Sedalia.....	Pettis.
Dale, Fred Hiner.....	Milo.	Vernon.
Daley, Lyle Miner.....	Hamilton	Caldwell.
Demeter, Reinhold Rudolph.....	Macon.....	Macon.
Dew, Samuel Arthur	Kansas City.. ..	Jackson.
Dimmitt, Joseph Bowles.....	Columbia.....	Boone.
Divers, William Perry.....	Auxvasse	Callaway.
Dooley, Marion Sylvester.....	Houston... ..	Texas.
Dow, Harvey Dill.....	Sedalia	Pettis.
Ducker, Walter Scott.....	Sedalia	Pettis.
Dudley, Frank Wesley	Caruthersville.....	Pemiscot.
Eastman, Cecil Keefer.....	Winston.....	Daviess.
Edwards, James Andrew.....	Centralia	Boone.
Ellis, James Daniel.....	Kansas City.....	Jackson.
Estes, Robert James.	Stilwell, <i>I. T.</i>	
Fields, Howard.....	Paris	Monroe.
Fine, Martha Payne.....	Columbia.....	Boone.
Fitch, Mary... ..	Warrensburg.....	Johnson.
Fitch, Ruby.....	Warrensburg... ..	Johnson.
Fleming, Edwin D. Rush.....	Columbia.....	Boone.
Foglesong, Sara Ella.....	Lamar.....	Barton.
Forrester, Bruce.	Kansas City.....	Jackson.
Franken, William Alwicious.....	Norborne.. ..	Carroll.
Fristoe, Charles Wisdom	Palo Pinto.....	Benton.
Galbraith, Eliza	Everton	Dade.
Garrett, William Lloyd.. ..	Independence.. ..	Jackson.
George, Bertha May.....	Hamilton.	Caldwell.
Gibson, Estelle Emily.....	Elsberry.....	Lincoln.
Glasscock, Thomas Tilden.	Tipton.	Moniteau.
Goodson, John Virgil.	New Cambria.....	Macon.
Gordon, Sadie Long.....	Columbia.. ..	Boone.
Gordon, Nellie Madge.....	Columbia.....	Boone.
Gordon, Laura Virginia.....	Columbia.....	Boone.
Greene, Homer Cooper.....	Ireland, <i>Ind.</i>	
Griffin, Ernest Elmer.....	Columbia.....	Boone.
Griffith, Florence Fisher	Columbia.. ..	Boone.
Harra, Frederic Christian.....	Buckner	Jackson.
Harrison, Carl.....	Mexico.....	Audrain.
Harrison, Jane Annetta.	La Plata	Macon.
Hechler, Fred George.....	Dalton	Chariton.
Henderson, Mabel.....	Columbia.....	Boone.
Henderson, Mary Evelyn.....	Columbia.....	Boone.
Hoffman, Dimmitt Heard.. ..	Sedalia.....	Pettis.
Howell, Daniel Voorhees.....	Brookfield.....	Linn.
Hurwitz, Walle Abraham.	Joplin.	Jasper.
Ikenberry, Josephus Henry.....	Sedalia.....	Pettis.
Ilgenfritz, Will McNair....	Sedalia.....	Pettis.
Imbler, Lewis James	Kirksville.....	Adair.
Jackson, Andrew, Jr.....	Carrollton.....	Carroll.
Jacobs, Floyd Emory.....	Kansas City.....	Jackson.
Jesse, Mary Polk	Columbia.....	Boone.

Name.	Postoffice.	County.
Jesse, Caroline Elizabeth.....	Columbia.. ..	Boone.
Jesse, Mary Daniel.. ..	Litwalton, <i>Va.</i>	
Johnson, Horace Asahel.....	Brookfield.	Linn.
Johnston, Margaret Bass.....	Columbia.....	Boone.
Jones, Robert William.....	Magdalena, <i>N. M.</i>	
Kaune, Quintus Arthur.....	Butler.....	Bates.
Kautz, James Otis.....	Hamilton.....	Caldwell.
Kell, Charles Lafayette.....	Poplar Bluff.....	Butler.
Kelly, Lota Elizabeth.....	Kansas City.....	Jackson.
Kennedy, Terrence Orlando.....	Poplar Bluff.....	Butler.
Kennedy, Hattie Mae.....	Vandalla.....	Audrain.
Knepper, Florence Burr.....	Carthage.....	Jasper.
Lasley, Henry Russell.....	Shelbina.....	Shelby.
Lewis, Carl Orville.....	Columbia.....	Boone.
Lhamon, Ruskin.....	Columbia.. ..	Boone.
Lipscomb, Virginia Lee.....	Columbia.....	Boone.
Loeb, Leo.....	Rich Hill.....	Bates.
Long, James Frank.....	Hannibal.....	Marion.
Lowell, Ora Walter.....	Trenton.....	Grundy.
Maddox, George Finley.....	New London.....	Ralls.
Mahan, Dulaney.....	Hannibal.....	Marion.
Manly, Basil Maxwell.....	Lexington.....	Lafayette.
Marsh, Annie Elizabeth.....	Columbia.....	Boone.
Martin, Joshua Blaire.....	Blue Mound, <i>Ill.</i>	
Mauro, Julia Baker.....	Sappington.....	St. Louis.
Miller, Edwin Burch.....	Boonville.....	Cooper.
Moore, Ethel Clare.....	Edinburg.....	Grundy.
McCormick, Harriett Odella.....	St. Louis City.	
McCormick, Maude.....	Hardin.....	Ray.
McCune, Eula.....	Bowling Green.....	Pike.
McCune, Oke.....	Frankford.....	Pike.
McNaught, Robert.....	Washington, <i>D. C.</i>	
McPheeters, Sherma.....	Benton.....	Scott.
Nacy, Frances Winifred.....	Jefferson City... ..	Cole.
Newkirk, Samuel Drake.....	Tipton.....	Moniteau.
Newman, Sylvia Loulse.....	Breckenridge.....	Caldwell.
Otis, Merrill Edward.....	Hopkins.....	Nodaway.
Peck, Henry Gordon.....	Columbia.....	Boone.
Perkins, Susie Adair.....	Columbia.....	Boone.
Pirkey, Russeli Johnson.....	St. Joseph... ..	Buchanan.
Pirkey, Everett Layton.....	St. Joseph.....	Buchanan.
Plunkett, Frank Willis.....	Columbia.....	Boone.
Poor, Gail Morrill.....	Columbia.....	Boone.
Powers, Candace.....	Paris.....	Monroe.
Prentis, Hally Morrison.....	St. Louis City.	
Price, Lakenan.....	Columbia.....	Boone.
Pulliam, Susie.....	Deer Park.....	Boone.
Quayle, Maude Cannell.....	Columbia.....	Boone.
Railsback, Homer.....	Hamilton.....	Caldwell.
Richards, Elizabeth.....	Columbia.....	Boone.
Rickey, Jean Salome.....	Columbia.....	Boone.
Robinson, Florence R.....	Maryville.. ..	Nodaway.
Robinson, Charles Edward.....	Joplin.....	Jasper.
Rowley, Grayce Marie.....	Louisiana.....	Pike.
Schmitt, Clara.....	Lowry City.....	St. Clair.
Scurlock, Lillian Mary.....	Columbia.....	Boone.
Searcy, Chloe.....	Columbia.....	Boone.
Seares, Harry Lesley.....	Corona, <i>Cal.</i>	
Sears, Mary Elizabeth.....	LaPlata.....	Macon.
Seymour, Elba.....	Drexel.....	Cass.
Shelton, Pearl Trevey.....	Windsor.....	Henry.
Shelton, Clara Lillian.....	Windsor.....	Henry.
Shelton, Charles William.....	Lancaster.....	Schuyler.
Silsby, Harry Dozier.....	Springfield.....	Greene.
Smith, Mary Madeline.....	Glenwood.....	Schuyler.
Smith, Harry Alonzo.....	Bunceton.....	Cooper.

Name.	Postoffice.	County.
Snyder, Edith Logan	Hannibal.....	Marion.
Sparks, Raymond Elmore	Kansas City.....	Jackson.
Squire, Mabel Annie	Joplin	Jasper.
Stean, Saldee May	Arrow Rock	Saline.
Stickney, James Earl	Carthage	Jasper.
Stout, John Arthur	Kansas City.....	Jackson.
Talbot, Thomas Ward.....	St. Louis City.	
Taylor, Robert Erskine.....	Miami.	Saline.
Terrell, Ted Allen	Macon City	Macon.
Thompson, Rodney Emmet.....	Nevada.	Vernon.
Thompson, Daisy	Bevier.....	Macon.
Townsend, Will	Bollivar.....	Polk.
Trewett, Fred Lee.....	Maryville	Nodaway.
Tuggle, Floyd Smith	Gallatin	Daviess.
Twyman, Elmer Davis.....	Independence.....	Jackson.
Wayman, Harry Selwyn	Kansas City.....	Jackson.
Wells, William Ernest... ..	Maryville	Nodaway.
White, Hazel.....	Norborne	Carroll.
Whitmore, George Rowe.....	Old Orchard	St. Louis.
Wilder, Ralph Barnabas	Ladonia	Audrain.
Williams, Jesse Raymond	Noble, Ill.	
Williams, Percy	Joplin	Jasper.
Williams, Harold Spencer	Warrensburg.....	Johnson.
Wilson, Thomas Buffington.....	Indian Mound, La.	
Winn, Beatrix... ..	Independence.....	Jackson.
Wood, Diller Clement.....	Kansas City... ..	Jackson.
Woodward, Edward Homer.....	Brunswick	Charlton.
Wright, Kirby Smith....	Ashley	Pike.

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Special Students.

Allen, Jessie May.....	Wichita, Kan.	
Allen, Frances Eugene.....	Barry, Ill.	
Allen, Mary Swepson	Columbia	Boone.
Allen, May Edyth	Danbury, Conn.	
Arnold, Mrs. Medora Castlio.....	San Jose, Cal.	
Arthur, Sylvester Irvin.....	Union City, Ind.	
Bassett, Mrs. Sara Elizabeth	Columbia ..	Boone.
Bedford, Lucy.....	Deer Park.....	Boone.
Bell, Elizabeth Lucile... ..	Hatch.....	Ralls.
Bird, Mrs. Carrie Reid	Columbia.....	Boone.
Botts, Bennie.....	Columbia.. ..	Boone.
Botts, Frances Virginia	Columbia.....	Boone.
Burgess, Mrs. Maggie.....	Pleasant Hill	Cass.
Bush, Estelle.....	Columbia	Boone.
Butterfield, Mary Marsh	Columbia ..	Boone.
Clarahan, Catherine Elizabeth	Salt Lake City, Utah.	
Cook, William Hutchinson	Columbia	Boone.
Cresap, Mrs. Martha Payne.....	Columbia.....	Boone.
Crisp, Joseph Shelby	Kansas City.....	Jackson.
Crump, Ella Julia	Hallsville	Boone.
Cummings, Anna Victoria.....	Gower	Clinton.
Daniels, Mrs. Louise Grimmer	Alto, Mich.	
Dearing, Frank Winchester	Columbia	Boone.
Ditherage, Rachel Lewis.....	New York City, N. Y.	
Dorsey, Harry Shreve, Jr.....	Gillespie, Ill.	
Finley, James Rufus.....	Excelsior Springs ..	Clay.
Fitch, Mrs. Louisa Norwood	Columbia	Boone.
Fleming, Adele	Columbia ..	Boone.
Foglesong, Lenna M.....	Lamar	Barton.
Frazier, Oliver	Grand Centre	Randolph.
Gerken, Emaline Anna.. ..	Hannibal.....	Marion.
Gerould, Mrs. Mary Chamberlain	Columbia	Boone.
Graham, Robert.....	Honeywood, Ontario	
Gruner, Caroline Frances	St. Louis City.	
Harris, Albert Sidney	Weston.....	Platte.

Name.	Course.	Postoffice.	County.
Robertson, Charles Emery	E. E.	Chicago, Ill.	
Ross, Lewis James	C. E.	Richmond.....	Ray.
Schooler, William Allen	M. E.	Carthage	Jasper.
Sea, LeRoi Hiram.....	C. E.	Independence.....	Jackson.
Smith, Orville Adniroum.....	M. E.	Vandalia	Audrain.
Tarter, Laban Moore.....	E. E.	Trenton.....	Grundy.
Vaughan, Courtney Richard	C. E.	Butler.....	Bates.
Walborn, Ira Guy	E. E.	Orwigsburg, Pa.	
Washer, Eb.	M. E.	Kansas City	Jackson.
Weed, James Murray.....	E. E.	Canon City, Colo.	
Welch, James Reid.....	C. E.	Elberry.....	Lincoln.
Whaley, George Clifton.....	M. E.	Canon City, Col.	
Whitlow, Joseph Andrew.....	E. E.	Coale.....	Henry.
<i>Freshman Class.</i>			
Alt, Charles Franklin.....	E. E.	Norborne....	Carroll.
Ardinger, Horace Chester.....	C. E.	Lexington	Lafayette.
Baender, Fred George.....	M. E.	Moberly	Randolph.
Bagby, Harry Edward.....	C. E.	Vinita, I. T.	
Baldwin, Robert Lee.....	E. E.	Dresden	Pettis.
Blanks, Don Hewitt.	C. E.	Moberly	Randolph.
Bonfoey, Percy Webb.....	E. E.	Unionville	Putnam.
Bradbury, Royall Douglas	C. E.	Kansas City	Jackson.
Brundidge, Lee.....	M. E.	Adrian	Bates.
Bullivant, Francis James.....	E. E.	Poplar Bluff	Butler.
Caldwell, James Clarence.....	C. E.	Slater.....	Saline.
Carter, Edward Glanville.....	E. E.	Kirkwood.....	St. Louis.
Clifton, William Ransom.....	M. E.	Houston	Texas.
Cloud, Wendell Holmes.....	C. E.	Kiowa, Kas.	
Cobbs, Edna Lee.....	C. E.	Vandalia.....	Audrain.
Coleman, Lindley Gilmore.....	E. E.	Monarch.....	St. Louis.
Collins, Enoch Arthur.....	E. E.	Columbia	Boone.
Conrath, Otto William.....	C. E.	Owatonna, Minn.	
Crane, Wells	C. E.	Columbia	Boone.
Crichton, Leslie Nathaniel.....	E. E.	Independence	Jackson.
Davidson, William Andrew.....	C. E.	Oregon	Holt.
Decker, Ernst William	E. E.	St. Louis City.	
Denny, Will.....	C. E.	Armstrong.....	Howard.
Dinkle, Ernest.....	C. E.	Hilldale	Howard.
Driggs, Edwin Leroy.....	C. E.	Creighton	Cass.
Durant, David Richardson	C. E.	Bromley, Ala.	
Emmert, Roy West.....	C. E.	St. Joseph.....	Buchanan.
Estes, Robert James.....	M. E.	Stillwell, I. T.....	
Gaines, Ernest Lamar.....	E. E.	Trenton.....	Grundy.
Gilmor, Robert Edward.....	C. E.	Vandalia.....	Audrain.
Glass, Albert Earle.....	C. E.	Harrisonville	Cass.
Hain, Velt Aull.....	E. E.	Boonville.....	Cooper.
Harris, George Frederick.....	M. E.	Jameson	Daviess.
Hoff, Carl Porter	C. E.	Stockton	Cedar.
Jacoby, Fred Reuben.....	C. E.	O'Fallon	St. Charles.
Johnston, George Perry	C. E.	Monroe City.....	Monroe.
Kelso, Leslie Erskine Allan.....	E. E.	Musclefork	Charlton.
Kirkham, William Harry.....	C. E.	Orrick	Ray.
Kizer, Raymond	E. E.	Stanberry.....	Gentry.
Lake, Joberry	C. E.	Columbia	Boone.
Laned, William Henry	E. E.	Gilliam	Saline.
Lieber, Roman Arthur Euglene....	E. E.	Boonville	Cooper.
Martin, Fred William.....	E. E.	Moberly	Randolph.
Maupin, Oval Asbury.....	E. E.	Canton	Lewis.
Moorehouse, Ernest Campbell.....	C. E.	Hamilton	Caldwell.
Nash, Franklin Marion.....	E. E.	Clinton.....	Henry.
O'Brien, Clarence Abbott.....	M. E.	Kansas City	Jackson.
O'Connor, Frank Maurice.....	E. E.	Maryville.....	Nodaway.
Orr, Owen Cargill.....	C. E.	St. Joseph	Buchanan.
Peters, Albert Newton.....	C. E.	Crane.....	Stone.

Name.	Course.	Postoffice.	County.
Pettingill, Newland.....	M. E.	Memphis.....	Scotland.
Richardson, John Eaton.....	E. E.	Kansas City	Jackson.
Riesbol, Fred Peterson.....	C. E.	Red Bird	Gasconade.
Robertson, Olin.....	E. E.	Clarksburg	Moniteau.
Romberg, Edward Robert.....	C. E.	Hannibal	Marion.
Russell, Clifford Norman..	E. E.	Normandy.....	St. Louis.
Schrenk, Louis John	M. E.	Brunswick.....	Chariton.
Sedwick, Harry Frazer ..	E. E.	Mt. Vernon.....	Lawrence.
Smith, Homer Kephart. .	E. E.	Maltland... ..	Holt.
Smith, Lynn Wallace.....	E. E.	Franklin.....	Howard.
Smith, William Forrest.....	C. E.	Essex	Stoddard.
Spaht, Albert William.....	E. E.	Pattonsburg..	Daviess.
Steiner, Alexander	E. E.	St. Louis City.	
Stokes, Van Harrison....	C. E.	Malden	Dunklin.
Taylor, Woodford County.....	C. E.	Kansas City ...	Jackson.
Thompson, James Loyd	C. E.	Roswell, <i>N. M.</i>	
Torrance, Bert Victor.....	E. E.	Fredonia, <i>N. Y.</i>	
Twelves, Charles Murray	E. E.	Provo, <i>Utah.</i>	
Vandiver, James Lewis.....	C. E.	Columbia	Boone.
Walker, Ben Shore	E. E.	Columbia ...	Boone.
Walker, James Lacy.....	C. E.	Hannibal	Marion.
Walker, Edwin Griswold.....	M. E.	Monroe City.....	Monroe.
Wells, Ross Clark.....	C. E.	Kansas City	Jackson.
White, Ivan Forrest.....	C. E.	Harrisonville ...	Cass.
Willi, Otto Barnett... ..	M. E.	Montgomery City	Montgomery.
Woods, John Marcus Jr.....	E. E.	O'Fallon.. ..	St. Charles. —76
<i>Special Students.</i>			
Alexander, Phillip Thomas	C. E.	Farmington	St. Francois.
Brill, John Pierce.....	M. E.	Lincoln. .	Benton.
Coleman, Charles Denby... ..	C. E.	Logansport, <i>Ind.</i>	
Krumm, Henry Alexander	M. E.	Pilot Grove.	Cooper.
McBride, James Arthur.....	C. E.	Pleasant Hill	Cass.
Rasmason, Lewis.....	E. E.	Salt Lake City,	<i>Utah.</i>
Russell, Robert William.....	C. E.	Cameron ...	Clinton.
Sellers, Reuben Frank.....	M. E.	Lamonte.....	Pettis.
Shurts, Clarence Leone.....	E. E.	Mason, <i>Ohio.</i>	
Stader, James Aquilla.....	E. E.	Newtonia... ..	Newton.
Woodward, J. G.	C. E.	Columbia	Boone. —11

School of Mines.

Name.		Postoffice.
<i>Graduate Students.</i>		
Clark, George Clough.....	B. S. in E. M.	Bisbee, <i>Ariz.</i>
Cowles, Frederick Ragland..	B. S. in G. S.	Kansas City.
Draper, James Clark.....	B. S. in E. M.	Lebanon.
Fraizer, Isaac Peter.....	B. S. in C. E.	Sherman, <i>Texas.</i>
Garcia, John Adrian.....	B. S. in E. M.	St. Louis City.
Garrett, Leon Ellis.....	B. S. in G. S.	Maryville.
Jackling, Daniel C.....	B. S. in E. M.	Canon City, <i>Col.</i>
May, Lawrence..	B. S. in E. M.	Marion, <i>Ky.</i>
Morris, Edward James.	B. S. in E. M.	Rolla.
Olmsted, George Lewis ...	B. S. in C. & M.	Granite City, <i>Ill.</i>
Perkins, Edwin Thompson...	B. S. in E. M.	Cripple Creek, <i>Col.</i>
Perkins, Fred Hough	B. S. in E. M.	Salt Lake City, <i>Utah.</i>
Powell, Walbridge Henry...	B. S. in E. M.	St. Louis City.
Rogers, John.....	B. S. in E. M.	Zacatecas, Mexico.

Name.		Postoffice.
Rolufs, Rulof Theodore	B. S. in E. M.	Herculaneum.
Spencer, Clifton Bates	B. S. in E. M.	Springfield.
Walsh, Francis Henry	B. S. in C. E.	Gilbertsville, <i>Mass.</i>
Watkins, Joseph Clarence	B. S. in C. E.	Ennis, <i>Tex.</i>
Wilson, Albert Dyke	B. S. in C. & M.	Kansas City. —19
<i>Senior Class.</i>		
Alexander, Raphael Currier		Medicine Lodge, <i>Kan.</i>
Bell, Frank Rolla,		Rich Hill.
Dally, Cornelius Mark		Rolla.
D'Arcy, Arthur Ignatius		Denver, <i>Col.</i>
Gill, William Harris		Rolla.
Greenidge, Samuel Marshall		Barbadoes, <i>W. I.</i>
Hauenstein, Frederick	(A. B. Westminster)	Tuscumbia.
Logan, Louis Sublette		St. Joseph.
Luther, Walter Adams		St. James.
Roesler, Herbert Arno		El Paso, <i>Tex.</i>
Schulze, Eugene Vincent		Vetchau, <i>Germany.</i>
Taussig, Amadee Jolivet		St. Louis City.
Trask, Samuel Mathes		Memphis, <i>Tenn.</i>
Walker, John Edward		Union.
Weidner, Frank Hayes		Dixon.
Webster, Royal Sylvester ..		Kansas City. —16
<i>Junior Class.</i>		
Ambler, John Owen		St. Louis City.
Bayha, William Lobenstein ..		Kansas City.
Black, James Kennedy		Clayton.
Bland, George Vest		Lebanon.
Brown, Albert Gourley		St. Joseph.
Brown, Joseph Jarvis		Troy, <i>Illinois.</i>
Carnahan, Thomas Samuel ..		Ogden, <i>Utah.</i>
Christopher, James Knight ..		Kansas City.
Conrads, Ralph Augustus ..		Trenton.
Cummins, Robert Patrick	(B. S. Chris. Bros. Col.)	St. Louis City.
Delano, Lewis Albert		Ironton.
Dunkin, Damon Duffield		Kansas City.
Emry, Leslie Burson		Carthage.
Fish, Frederick Thomas		Davenport, <i>Iowa.</i>
Foster, Leo Joseph	(B. S. Chris. Bros. Col.)	St. Louis City.
Grine, Henry Adam		St. Louis City.
Gregory, James Albert		Joplin.
Hoewel, William Alexander ..		St. Louis City.
Hummell, Charles Mahlon	(B. S. Univ. Neb.)	Humboldt, <i>Neb.</i>
Keenan, John Thomas		Lonsdale, <i>R. I.</i>
King, Charles Leclair		Reynoldsville, <i>Pa.</i>
Kriekhaus, Leon Lewis		St. Louis City.
Lohman, Harry William		Brooklyn, <i>N. Y.</i>
McCarthy, John Henry, Jr. ..	(B. S. Chris. Bros. Col.)	St. Louis City.
Minor, Cyrus Edward		Springfield.
Moll, Kurt Victor		St. Louis City.
Morgan, Glen Beckley		Indianapolis, <i>Ind.</i>
Myers, Claude		St. Louis City.
Perrier, Alphonse Sylvan		Gillett, <i>Colo.</i>
Prugh, Julian Insko		Sioux City, <i>Ia.</i>
Quinn, Mathew Vincent		Pen Yan, <i>N. Y.</i>
Reed, James Logan		Carthage.
Rice, John Turner		Omaha, <i>Neb.</i>
Richards, Oren Paul		Bradshaw, <i>Neb.</i>
Rone, Lloyd Ardrey		Rockingham, <i>N. C.</i>
Russ, George Albert		Bureka Springs, <i>Ark.</i>
Schroeder, John Severin		Peabody, <i>Kan.</i>
Tweed, Walter James		Houston.
Woods, Clarence		Silver City, <i>Idaho.</i>
Wrisberg, Charles George ..		St. Louis City. —40

Name.		Postoffice.
<i>Sophomore Class.</i>		
Armstrong, Robert Augustus	.....	Denver, Colo.
Baker, George Craft. ....	.....	Paris, Tex.
Baker, William Edward.....	.....	Aurora.
Barnard, Dale Coleman.....	.....	Kansas City.
Burgher, Mark Bernardi.....	.....	Light.
Caples, James Watts.....	.....	Glasgow.
Chamberlain, Harry Carleton	.....	St. Louis City.
Clarey, John Henry.....	.....	Clearmont.
Cowperthwaite, Thomas. ..	.....	Coal Creek, Colo.
Draper, Joseph Washington..	.....	Lebanon.
Gardiner, William Alexander	.....	Fullerton, Cal.
Graves, John, Jr.....	.....	Kansas City.
Gray, Harry Lillburn... ..	.....	Bowling Green.
Green, Cecil Theodore.....	.....	Sacramento, Cal.
Green, Willis Abraham.....	.....	Craig, Colo.
Grether, Walter Scott.....	.....	Greenfield.
Guntley, Edward Anthony...	.....	St. Louis City.
Hand, Horace Alonzo.....	.....	Stuttgart, Ark.
Harris, George William.....	.....	Yankton, S. D.
Hauber, Matthew.....	.....	Grant City.
Heck, Elmer Cooper.....	.....	Lathrop.
Hoffman, Ray Eugene.....	.....	Buffalo, N. Y.
Hunt, Lamar Horatio.....	.....	Chicago, Ill.
Hurtgen, John.....	.....	Hillsboro.
Jamison, Early James.....	.....	Rolla.
Johnson, Herbert Fletcher..	.....	Kansas City.
Jones, Judson Waldo. ....	.....	Liberty.
Kindricks, Alpha Harney....	.....	Seymour.
Knowles, Robert William....	.....	Kansas City.
Kunz, David.....	.....	Mountain City, Nev.
Laizure, Clyde McKeevar...	.....	Fargo, N. D.
Lehman, John Ludwig Gustav	.....	Monett.
McCaw, Fred John. ....	.....	Rolla.
McMaster, Walter Guy.....	(B. S. Knox College)	Oneida, Ill.
Mapes, Harold Thomas.....	.....	Philadelphia, Pa.
Nesbitt, William.....	.....	Hopkinsville, Ky.
Niedringhaus, Irving Charles	.....	St. Louis City.
Poole, Frank Bishop.....	.....	Rolla.
Price, Evan Edmund.....	.....	Canon City, Colo.
Price, John Morgan... ..	.....	Canon City, Colo.
Rucker, Ray Fleming.....	.....	Rolla.
Schnitzer, John Liborius. ...	.....	Hannibal.
Simpson, Maurice Eduards ..	.....	Kansas City.
Smith, Charles Dosh.....	.....	St. Louis City.
Thomas, Alfred Augustus, Jr	.....	Marionville.
Webb, Carroll Dean.....	.....	Sioux City, Iowa.
Wells, Frank Oliver.....	.....	Prescott, Ariz.
Whitehead, Arthur Stanley..	.....	St. Joseph.
Wilder, Michael Alonzo.....	.....	Trinidad, Colo.
Wilfley, Clifford Redman ...	.....	Maryville.
Williams, Bruce.....	.....	Chanute, Kan.
Wright, Ira Lee.....	.....	Dresden.
Wyman, William Charles, Jr	.....	Ottumwa, Iowa.
<i>Freshman Class.</i>		
Andrews, Sanford William...	.....	Arcadia.
Armstrong, Richard Edward	.....	Howell, Mich.
Beall, Thomas Davidson.....	.....	El Paso, Tex.
Blackman, George Horton...	.....	St. Louis City.
Blake, Fred Charles.....	.....	Denver, Colo.
Blatchley, William Henry ..	.....	Fort Scott, Kan.
Carpenter, Gertrude May....	.....	Rolla.
Clark, Oliver Hunter, Jr.....	.....	Cleveland, Ohio.

Name.		Postoffice.
Colwell, William Henry .....	.....	Tampa, <i>Fla.</i>
Cook, Paul Richard .....	.....	Rolla.
Dalton, George Crockett .....	.....	Lenox.
Davies, Charles Rees .....	.....	Cripple Creek, <i>Colo.</i>
Doster, Wade .....	.....	Marion, <i>Kan.</i>
Dycus, Harold Kimbrough .....	.....	Fort Worth, <i>Tex.</i>
Emmons, St. Clair Patterson .....	.....	Mexico.
Evans, David Chaplin .....	.....	Hiawatha, <i>Kan.</i>
Filkin, James Park .....	.....	Kansas City, <i>Kan.</i>
Followill, Dexter Benjamin .....	.....	Rolla.
Gilbreath, George Carroll .....	.....	Love Lake.
Griffith, William Thomas .....	.....	St. Louis City.
Groebe, John Fred .....	.....	Kansas City.
Hammon, John Stuart .....	.....	Denver, <i>Colo.</i>
Harrison, Georgia .....	.....	Rolla.
Harper, Frank William .....	.....	Dallas, <i>Tex.</i>
Hartzell, Henry .....	.....	Poplar Bluff.
Hatch, William Peter .....	.....	Kansas City.
Hazen, Clyde Frederick .....	.....	Denver, <i>Colo.</i>
Herndon, Robert Cam .....	.....	Lebanon.
Horner, Preston King .....	.....	St. Louis City.
Hunt, James William .....	.....	Lenox.
Kepler, Henry Clay .....	.....	Alexandria Bay, <i>N. Y.</i>
Klaus, Frank .....	.....	E. St. Louis, <i>Ill.</i>
Kline, Anna .....	.....	Rolla.
Knight, Stewart Clark .....	.....	Kansas City.
Landreth, Charles Guy .....	.....	Neosho
McMillan, Walter White .....	.....	Iola, <i>Kan.</i>
Mook, Robert Lee .....	.....	St. Louis City.
Morse, Lee Carter .....	.....	St. Louis City.
Nordyke, Rex .....	.....	Bethany.
Northrup, Gilbert Wright .....	.....	Ashton, <i>Ill.</i>
Orchard, Craig Edward .....	.....	Salem.
Parker, Ralph Lyon .....	.....	St. Louis City.
Perez, Eliseo .....	.....	Ciudad, Romero, <i>Mex.</i>
Poole, Ralph Edward .....	.....	Rolla.
Powell, Frank Bowman .....	.....	Rolla.
Rush, Harry Buford .....	.....	Marshfield.
Seele, Robert Henry Hohens- child .....	.....	Rolla.
Shanks, John Dozier .....	.....	Steelville.
Soest, Herbert Hugo .....	.....	Rolla.
Squier, Herbert Harold .....	.....	St. Louis City.
Steinmesch, Jesse Herman .....	.....	St. Louis City.
Stevens, John Vivian .....	.....	Clayton.
Stone, John Russell .....	.....	Strafford.
Techow, Wolfrung .....	.....	Berlin, <i>Germany.</i>
Via, William Amos .....	.....	Rolla.
Villareal, Felizardo .....	.....	Monclova, <i>Mex.</i>
White, George Curnoe .....	.....	Neosho.
White, Joseph Ellsworth .....	.....	Norborne.
Wilson, Norval .....	.....	Settle Station.
Wilson, Thurlow Maltby .....	.....	Webster Groves.
Wood, Fred Benjamin .....	.....	Ft. Worth, <i>Texas.</i>
Wright, Ival Lee .....	.....	McFall.
Zweers, John Albert .....	.....	Albany, <i>N. Y.</i>
<i>Special Students.</i>		
Blair, Hubbard .....	.....	Kirksville.
Blanchard, Alice Cary .....	.....	Rolla.
Buehler, Henry Andres	(B. S. Univer. Wisc.)	Madison, <i>Wis.</i>
Bowen, Joseph Henry .....	.....	Crozet, <i>Va.</i>
Boyes, Marion Allison .....	.....	Auxvasse.
Church, Edward .....	.....	Chicago, <i>Ill.</i>
Heller Robert .....	.....	Rolla.

Name.		Postoffice.
Morgan, John Henry.....	.....	Rolla.
Schaeffer, August.....	.....	Cincinnati, <i>Ohio</i> .
Scofield, Lewis.....	.....	Keuka Park, <i>N. Y.</i>
Scott, John Henry.....	.....	Rolla.
Scott, Lewis Lawrence.....	.....	St. Louis City.
Shaw, Oliver Clark.....	.....	Swanee, <i>Tenn.</i>
Southgate, John McKnight....	.....	Rolla.
Thompson, Robert Clair.....	.....	Irvine, <i>Pa.</i>
Tolen, Henry Lamb.....	.....	Bisbee, <i>Ariz.</i>
Wood, Herbert Long.....	.....	Rolla.
Zertuche, Francisco.....	.....	Rubio, <i>Mex.</i>

—18.

SUMMER SCHOOLS.

A. AT COLUMBIA.

L.—Latin; *Gr.*—Greek; *G.*—German; *Fr.*—French; *M.*—Mathematics; *E.*—English;
B.—Biology; *P.*—Physics; *S.*—Sloyd; *Hort.*—Horticulture; *Ag.*—Agriculture;
Geol.—Geology; *H.*—History; *C.*—Chemistry; *Histol.*—Histology;
D.—Drawing; *F-H-D*—Free Hand Drawing;
Anat.—Anatomy.

Name.	Studies.	Postoffice.	County.
Accord, Nora.....	E., M.	Sheffield.....	Jackson.
Adair, Sudie Payne.....	E., H.	Clinton.....	Henry.
Ahalt, Genevieve.....	E., M.	Palmyra.....	Marion.
Albert, Ethelyn Nicaty.....	G., H.	Seneca.....	Newton.
Alexander, Wallace.....	G., H.	Kirksville.....	Adair.
Alexander, Roger Gordon.....	E., L.	Paris.....	Monroe.
Alexander, Carter.....	Fr., C.	Paris.....	Monroe.
Altord, Clarence Elmer.....	L., H.	Vandalia..	Audrain.
Andrews, John Hobson.....	C., P.	Lawson.....	Ray.
Antonowsky, Benjamin.....	Fr., M.	New York, <i>N. Y.</i>	
Arnold, Charles.....	H., E.	Ashland....	Boone.
Arnold, Mrs. Medora Castlio..	F-H-D.	San Jose, <i>Cal.</i>	
Arthur, Sylvester Irvin.....	C., E.	Union City, <i>Ind.</i>	
Austin, Belle.....	P., H.	Granville.....	Monroe.
Bailey, Cosby Christian.....	E.	Trenton.....	Grundy.
Baird, James Claud.....	H., P.	Redding, <i>Iowa</i> .	
Baker, Josephine.....	H.	Brookfield.....	Linn.
Baker, Beulah Norvell.....	E., L.	Columbia.....	Boone.
Baker, Alice Helen.....	H.	Shelbina.....	Shelby.
Bannister, William Daniel.....	Histol., S.	Florida.....	Monroe.
Barley, Ida Lewis.....	E., H.	Kansas City.....	Jackson.
Barnett, Mary Jesse.....	Gr., Fr.	Columbia.....	Boone.
Barnett, Raymond G.....	E., G.	Kansas City.....	Jackson.
Barry, Norman Clarke.....	E.	Stroudsburg, <i>Pa.</i>	
Barth, Louis Levy.....	M.	Mexico.....	Audrain.
Beery, Roy Funkhouser.....	Fr., H.	Holt.....	Clay.
Bek, William Godfrey.....	H., Fr.	Herman.....	Gasconade.
Bellisle, Matthew Robertson...	H.	Appleton City.....	St. Clair.
Bernstorf, Frank Adolph.....	E., F.	Bushton, <i>Kas.</i>	
Biggs, James Paul.....	Fr., L.	Ashland.....	Boone.
Black, Sanders Whiting.....	L., G., Hort.	Columbus, <i>Kas.</i>	
Blair, James William.....	L., G.	Topeka, <i>Kas.</i>	
Boardman, Emma.....	L., H.	Harrisonville.....	Cass.
Bolton, May.....	M., S.	Jefferson City.....	Cole.
Boman, John Sidney.....	C., M.	Roads.....	Carroll.

Name.	Studies.	Postoffice.	County.
Bonnot, Remigius Edmond August ...	Anat., Histol.	Bonnot's Mill.....	Osage.
Booth, Acena Mae.....	L.	Columbia.....	Boone.
Boothe, Daisy Dean.....	H., Ag.	Louisiana.....	Pike.
Botts, Lena Chattau.....	E., G.	Columbia.....	Boone.
Botts, Lida.....	E.	Columbia.....	Boone.
Bowers, Ephriam Monroe.....	Fr., Gr.	Centropolis, Kas.	
Bradley, Maggie Woods...	E.	Mexico.....	Audrain.
Bradsher Earl.....	Fr.	Clifton Hill.....	Randolph.
Branham, Madeline.....	F-H-D.	Columbia.....	Boone.
Brewer, Lake.....	Anat., Fr.	Ridgeway ...	Harrison.
Brewer, Robert Eugene.....	E., P.	Red Bird.....	Gasconade.
Briggs, Lee Roscoe.....	H., P.	Memphis.....	Scotland.
Brightman, Samuel Charles...	L., Ag.	Lancaster.....	Schuyler.
Brossard, Julia Ella.....	G., B.	Kirkwood....	St. Louis.
Brous, Bertrand C.....	G., C., Histol.	Esrom.....	Barton.
Brown, William Salem.....	L.	Troy.....	Lincoln.
Brown, Ethel Evelyn.....	E., C.	Jamesport.....	Daviess.
Burch, Ollie Helen.....	E., Fr., H.	Hopkins.....	Nodaway.
Burton, James McLeod....	E., L.	Kansas City ..	Jackson.
Busch, Ella Adeline.....	Gr., Fr.	Washington.....	Franklin.
Button, Clifford Harold.....	E., H.	Appleton City....	St. Clair.
Caldwell, Robert Breckenridge	H.	Nadine.....	Ralls.
Campbell, John Claud.....	E., M., H.	Montrose.....	Henry.
Campbell, William Richard....	P., M., E. H.	Clinton.....	Henry.
Canada, Charles Walden.....	E., G.	Shafter.....	Linn.
Carlson, Minnie Christina....	Fr., G.	Clay Center, Kas.	
Carpenter, George William..	E., H.	Miami.....	Saline.
Carrington, Will John.....	Anat.	Jefferson City....	Cole.
Carter, Aura Smith.....		Hallsville.....	Boone.
Carter, Martha Matilda....		Huntsville.....	Randolph.
Carter, Asa Leroy.....	E., H.	Roby....	Texas.
Cauthorn, Emma.....	L.	Columbia.....	Boone.
Cauthorn, Louisa Leah....	B.	Columbia.....	Boone.
Cavanaugh, Daniel Joseph....	P.	St. Charles.....	St. Charles.
Chick, Alice.....	Anat.	Shelbyville.....	Shelby.
Clarahan, Catherine Elizabeth	E., H.	Salt Lake City,	Utah.
Clegg, Philip.....	M.	New Orleans, La.	
Coe, Denzil Worrell.....	D., M.	San Francisco,	Cal.
Cole, Granville Malcome, Jr...	Geol.	Kansas City.....	Jackson.
Cole, Norman John.....	Fr.	Quaker.....	Washington.
Collier, Myrtle.....	E.	Jasper City.....	Jasper.
Compton, Mrs. Bessie Beau-			
champ.....	E.	Leasburg, Fla.	
Conley, Dudley Steele.....	P.	Columbia.....	Boone.
Cook, Stella....	E., Hort.	Centralia.....	Boone.
Corbin, Catherine.....	E., H., M., S.	Hume.....	Bates.
Cosby, Byron....	H., Fr.	Butler.....	Bates.
Cowherd, Clyde Estis.....	D.	Columbia.....	Boone.
Crockett, Nellie.....	E., H.	Hamilton.....	Caldwell.
Cross, Orbrey Lee.....	S., H., Hort.	Callao.....	Macon.
Crouch, Clarence Clinton....	Anat., C.	Columbia.....	Boone.
Cummings, Anna Victoria....	Fr., M.	Gower.....	Clinton.
Dade, Willoughby Daniel....	E., B.	Schell City.....	Vernon.
Darlow, Ada Adele.....	E., Ag.	Afton.....	St. Louis.
Dashiell, Laura Henry.....	Fr., Gr.	Columbia.....	Boone.
Davis, Mrs. Sadie Talbot....	E., H.	Platte City.....	Platte.
Davis, Dolly.....	E., S.	Keytesville.....	Chariton.
Davis, Estill.....	H., M.	Holliday.....	Monroe.
Davis, Anna.....	H., M.	Curryville....	Pike.
Decker, Elizabeth.....	M., S.	Lamar.....	Barton.
Deppe, Charles Alexander....	P., C.	Glenville.....	Clay.
Dewey, Lorenzo Simeon.....	Fr.	Kansas City.....	Jackson.
Deziel, Raymond.....	E., G.	Barre, Vt.	
Dickinson, Clement P.....	L., G.	Clinton.....	Henry.
Dimmitt, Philip Vaughn.....	Fr.	Columbia.....	Boone.

Name.	Studies.	Postoffice.	County.
Dimmitt, Joseph Bowles.....	P.	Columbia	Boone.
Dinkle, Ila Gene.	E., H.	Columbia... ..	Boone.
Dinkle, Ernest	D., M.	Hilldale.....	Howard.
Divers, William Perry	E., M., Hort.	Auxvasse	Callaway.
Dobson, Gilbert	M.	Columbia.....	Boone.
Dodson, Dora	P. B.	Masonville, Ky.	
Downing, Eleanor Josephine..	E.	St. Louis City.	
Dralle, Loretta Della.....	F-H-D.	Canton	Lewis.
Du Bois, Charles Clifford....	P., Histol.	Kansas City ..	Jackson.
Duckworth, Joseph Alford	L., G.	Oran	Scott.
Duffy, Emma Louise.	P., Ag.	Clinton	Henry.
Dunaway, Stella.....	E., L., H.	Caplinger's Mill..	Cedar.
Edwards, Laura Dell.....	E.	Middletown... ..	Montgomery.
Eitzen, Meta Therese	G.	Columbia.....	Boone.
Eitzen, Hertha Amelia	Hort.	Columbia.	Boone.
Elliff, Joseph Doliver.....	H., E.	Joplin.....	Jasper.
Ellis, Tom Montgomery.....	E. Ag.	Barnard	Nodaway.
Engelhardt, Francis Antony...	E., B.	Moscow Mills....	Lincoln.
Estes, Mollie	E.	Everton.	Dade.
Evans, John Roswell.....	Fr., Ag.	Maryville.....	Nodaway.
Ewing, Chatham	M.	Mayview	Lafayette.
Faller, Alice	L.	Indian Grove....	Chariton.
Ficklin, Arthur Graham.....	P.	Brookfield	Linn.
Fields, Grace.....	Fr., H.	Fayette.....	Howard.
Fisher, Russell Alvin.....	L. H.	Joplin	Jasper.
Foard, Edward Thomson.....	E., H.	Flatwoods.	Ripley.
Foglesong, Lenna M.....	S. G.	Lamar.	Barton.
Forman, Sadie Phillips.....	E., B.	Hannibal	Marion.
Foster, Guy Kenneth.....	Ag., Hort.	Columbia... ..	Boone.
Fowler, Georgia Lee.	Fr., G.	Eldon	Miller.
Fox, Mitchell P.....	E., Ag.	Skinner.....	Audrain.
Franken, W. A	M., H.	Norborne	Carroll.
Fretwell, Elbert Kirtley.....	L., H.	Williamstown....	Lewis.
Frieze, Everett.....	G., H.	Bona.....	Dade.
Fulks, Elma.....	R.	California.....	Moniteau.
Funk, Eugene Edgar.....	E., M., Hort.	Hurdland.....	Knox.
Gale, Henry Lee	P.	Fredericktown...	Madison.
Gatson, Ann Elizabeth.	M., H., E.	Vandalia.....	Audrain.
Gay, Sarah	S., E., H., Hort.	Hamilton	Caldwell.
Gilliam, Lella.....	E., H.	Brunswick.....	Chariton.
Glasgow, Roy.....	P., S.	Hannibal	Marion.
Godsey, Charles Roy.....	H., Fr.	Hopkins	Nodaway.
Goodson, Abbie	E., Ag., S., H.	Shelbyville.....	Shelby.
Grant, Willis Morten.....	M., H., E.	Ridgeway.....	Harrison.
Graves, Pollard Wisdom	E., H., P.	Woodlandville...	Boone.
Graves, Bettie Marvin.....	E.	Woodlandville...	Boone.
Gray, Laura.	Fr.	Columbia.....	Boone.
Gray, Daniel Thomas.....	H., Gr., Hort.	Stanberry	Gentry.
Grider, Fannie	E., Ag.	Vinton	Bates.
Griffin, Otho Bridgford.....	M.	Atlanta.. ..	Macon.
Groves, Andrew Washington..	P., G.	Allenville	Cape Girardeau.
Groves, John W.....	B., S., Hort.	Liberty.....	Clay.
Guthrie, Fanny Virginia...	Gr., Fr.	Columbia	Boone.
Hageman, George W.....	E. H.	Fitzgerald, Ga.	
Hall, Delmer Kenneth... ..	M.	Harrisonville	Cass.
Hammack, James Albert	M.	Pocahontas, Miss.	
Hancock, Thomas Roy....	E., P.	Ladonia	Audrain.
Hancock, Archie Rex	E., G.	Ladonia.....	Audrain.
Hardesty, Richard Stidman ..		Sumner.....	Chariton.
Hakkless, Mabel Clair.....	S., Ag.	Lamar... ..	Barton.
Harper, J., Edgar	E.	Butler	Bates.
Harrelson, Sallie.....	S., H., M.	Belton.....	Cass.
Harris, William Woodson. ...	M.	Rich Hill.....	Bates.
Harshe, Robt. Bartholow.....	S.	Columbia	Boone.
Hartwell, Charles Norris... .	G., Fr.	Teng Chow.....	China.
Hatfield, James Peyton.....	C., Ag., H., S.	Kansas City	Jackson.

Name.	Studies.	Postoffice.	County.
Hawkins, George Lorimer.....	H., L.	Festus.....	Jefferson.
Hays, William Henry.....	Gr., G.	Jackson....	Cape Girardeau.
Hazell, Corinne Suzanne.....	E., H.	Boonville.....	Cooper.
Hazell, Lucy Ella.....	S., Ag.	Tipton.....	Moniteau.
Helphenstine, Annie Laurie...	H., S., M., E.	Greenfield	Dade.
Henderson, Louise	Fr., G.	Nashville, <i>Tenn.</i>	
Henley, Kathryn	E.	Independence. ..	Jackson.
Hentschel, Gottfried F.....	C., B.	Talpa.....	Lewrence.
Herboth, Ella.....	F-H-D.	Central.	St. Louis.
Heyd, Frank	Gr., G.	Kirksville ...	Adair.
Hickman, Julia May.	M.	Brookfield ..	Linn.
Hockaday, Charles Ernest.....	C. P.	Belton.....	Cass.
Hoge, Wm. McGuffey.....	H., Hort.	Boonville.....	Cooper.
Hopkins, Nelson Orlando.....	Ag.	Westboro ..	Atchison.
Hornback, Irene	L.	Monroe City	Monroe.
Horton, Donia Mae	H., Ag.	Columbia	Boone.
Hughes, Isaac Henry.....	L., G., C.	Bloomfield.....	Stoddard.
Hughes, David Alexander....	L., B.	Effie.	Callaway.
Hugley, Charles B.....	E., B.	Paris	Monroe.
Hulett, Ollene Gilmer.....	Fr., Ag.	Hallsville.....	Boone.
Humphrey, George Lee....	P., Ag.	McFall.....	Gentry.
Hupe, William Fred.....	E., S.	Montgomery City	Montgomery.
Hutcheson, Grace	P.	Carthage ...	Jasper.
Jackson, Caroline Ruth	Anat., Fr.	Chillicothe.....	Livingston.
Jackson, Charles Thomas.....	M.	Miami	Saline.
Jenkins, Frank Baronowsky...		Grand Tower, <i>Ill.</i>	
Jesse, Lucy Wilmeth		Mexico.....	Audrain.
Jewett, Ida.....	E., H.	Shelbina.....	Shelby.
Johnson, William J....	M., P.	Cleburne, <i>Kans.</i>	
Johnson, George Ray.....	L., P.	Princeton.....	Mercer.
Johnson, Carrol Allen.	E., Gr.	Columbia.	Boone.
Johnston, Ida.....	E., S., M., Hort.	Belton.....	Cass.
Johnston, Sabra Harris....	E.	Jonesboro'gh, <i>Ark</i>	
Jones, Samuel Rogers..	P., H.	Excelsior Springs	Clay.
Jones, Lee Martin.....	C., P., E.	Independence ...	Jackson.
Jones, Abner	H., M.	Buffalo.....	Dallas.
Jones, Virginia	S., H.	Garden City.....	Cass.
Jones, Edward Seward.....	H., G.	Bevier.....	Macon.
Kahn, Theckla	H.	Columbia	Boone.
Kampschmidt, August William	G., P.	Cedar Fork.	Franklin.
Kelsey, Fred.....	H.	Farmington, <i>Wash</i>	
Kelso, Grove Eugene.....	E., H.	Musselfork.....	Chariton.
Kennedy, Eugenia Martin ...	M.	Clinton	Henry.
Kent, Sadie Trezevant.....	C., Ag.	Malden.....	Dunklin.
Kerr, Nelson ...	L., Gr.	Forest City.....	Holt.
Killian, Frieda Ernstine..	Gr., G.	Hannibal.....	Marion.
Kilmer, Harry Edmund	H., P.	Yorkshire, <i>Iowa.</i>	
King, Robert Charles.....	M.	Hanoverville, <i>Pa.</i>	
Kinyon, Mrs. Mary Isabella...	H., S., Hort.	Poplar Bluff	Butler.
Koch, Clara May Barbara.....	Fr.	La Grange	Lewis.
Krimminger, Octavia	E.	Piedmont.....	Wayne.
Kuehls, Joseph	C., P.	Higginsville	Lafayette.
Kydd, Elizabeth.	A., F-H-D.	Green Ridge.....	Pettis.
Laeuffert, Walter Fred.....	P.	St. Louis City.	
Lake, Arlington Sinclair	E., H., S.	Columbia	Boone.
Lamkin, Uel Walter.....	H.	Clinton.....	Henry.
Lauman, Belle.	L., E., M.	Wellston.....	St. Louis.
Leavenworth, George.....	Geol.	Ste. Genevieve....	Ste. Genevieve.
Ledwidge, Una Mary	E.	St. Louis City.	
Leib, Cassius M.....	M., E.	Columbia.....	Boone.
Leib, Mrs. Cassius M.....	G., Fr.	Columbia	Boone.
Lhamon, Ruskin.....	Gr.	Columbia	Boone.
Liggett, Mrs. Gertrude F.	Fr.	Stanberry.....	Gentry.
Loeb, Virgil.....	M.	Columbia	Boone.
Long, C. M.....	H., Fr.	Hallsville.....	Boone.
Long, Ona.	E., Hort.	Kansas City	Jackson.

Name.	Studies.	Postoffice.	County.
Loughran, Alice.....	E., Hort.	Maplewood.....	St. Louis.
Lovelace, Robert Nelson.....	E., M.	Palmyra.....	Marion.
Lushbaugh, Erith Evert.....	M.	Columbia.....	Boone.
Lutman, Benjamin Franklin..	P., H.	Joplin.....	Jasper.
Lynch, Orton Coleman.....	E.	Robertsville.....	Franklin.
Macdonald, Sam.....	Histol.	Newcastle, Ky.	
Macfarlane, Mrs. Alice O.....	Fr.	Mexico.....	Audrain.
Macfarlane, Guy O'Rear ..	M.	Mexico.....	Audrain.
Maddox, Jos. Shelby.....	H., S.	Long Branch.....	Monroe.
Maguire, Emily.....	M., L.	Maplewood.....	St. Louis.
Manly, Basil Maxwell.....	Gr., L., F-H-D.	Lexington.....	Lafayette.
Manuel, Mary.....	P., E., L.	Clarence.....	Shelby.
Marlow, Roy Stone.....		Martinsburg.....	Audrain.
Marriott, Elles True.....	S.	Sulph.Sp'gs L'd'g	Jefferson.
Marston, Charles Emerson....	E., Hort.	Wheatland.....	Hickory.
Mason, Alicia Trellesse.....	E.	Columbia.....	Boone.
Mauro, Julia Baker.....	P., Ag.	Sappington.....	St. Louis.
Meissner, James Garfield.....	S.	Bushberg.....	Jefferson.
Melton, Emma.....	Fr., G.	Clinton.....	Henry.
Moling, Lura May.....	L.	Bethany.....	Harrison.
Montgomery, Sarah Maud E. B.		Columbia.....	Boone.
Montgomery, Helen Bell.....	P., F-H-D.	Columbia.....	Boone.
Moore, Mary Eugenia.....	L.	Columbia.....	Boone.
Moore, Henry Thomas.....	Gr.	Columbia.....	Boone.
Moore, Olin Harris.....	G.	Columbia.....	Boone.
Moorman, Julius Clay.....	E., G.	Maysville.....	DeKalb.
Morgan, Fred Buckner.....	L., C., P.	Tulip.....	Monroe.
Morrison, Oliver Monroe.....	E., P.	Stanberry.....	Gentry.
Morrow, Walter Ewing.....	E., H.	Warrensburg.....	Johnson.
Moss, Robert Faulkner.....	M.	Columbia.....	Boone.
Myers, Robert Lee.....	G.	Everton.....	Dade.
McCaleb, Rebecca Isabel.....	H., Fr.	Tarkio.....	Atchison.
McCallon, Emma.....	E., H.	Rankin.....	Andrew.
McCarroll, Ben.....	E., M.	Bloomington.....	Stoddard.
McClement, Kate.....	E., H.	Bethany.....	Harrison.
McClintock, Grace A.....	E., H.	Granby.....	Newton.
McCrary, Victor.....	E., H.	El Dorado Springs	Cedar.
McCune, Oke.....	H.	Frankford.....	Pike.
McFarland, Daniel.....	E., H.	Kansas City.....	Jackson.
McGill, Caroline.....	C., Histol.	Lebanon.....	Laclede.
McGowan, Laura Taylor.....	Fr., M.	Sedalia.....	Pettis.
McKee, Herbert Nelson.....	G.	Zalma.....	Bollinger.
McNeill, Bettie Talliaferro....	L., H., P.	Shelbyville.....	Shelby.
McNutt, Kathleen.....	F-H-D.	Bowling Green...	Pike.
McPike, Gertrude.....	E., M.	Seventysix.....	Pike.
Nardin, George Frederick.....	E., H.	Vandalia.....	Audrain.
Neet, Claude A.....	P., M.	Golden City.....	Barton.
Nelson, Earl Fontaine.....	H., Fr.	Milan.....	Sullivan.
Newlon, Nathan B.....	E., P., S.	Craig.....	Holt.
Nickell, Joseph.....	H., Agr.	Wakenda.....	Carroll.
Nickell, Luther Ove.....		Granville.....	Monroe.
Niebruegge, Wm. Frederic....	E., G.	Mt. Sterling.....	Gasconade.
Nowell, Fannie R.....	Gr., Fr.	Columbia.....	Boone.
O'Connor, Tom Edward.....	Anat., S., L.	Maryville.....	Nodaway.
Ogier, Wm. Calvin.....	L., E., P.	Ironton.....	Iron.
Okubo, Takeshi.....	Fr., G.	Tokushima, Japan.	
Oliver, Cora.....	E., M., H.	Fayetteville, Ark.	
Oliver, Wm. Isaac.....	B., E.	Brown's Station..	Boone.
O'Rear, Miranda Allen.....	H., L.	Sweet Springs....	Saline.
Owen, Frederick Benjamin....	L.	Clinton.....	Henry.
Owen, Laura Frances.....	E., Fr.	Paradise.....	Clay.
Patterson, Edwin Scott.....	C., P., H.	Centralia.....	Boone.
Patzwald, Otto Reinhold.....	Fr., Gr.	Adrian, Mich.....	
Payne, Susan L.....	E., H.	Asbland.....	Boone.
Peery, Georgia Alice.....		Shamrock.....	Callaway.
Peery, Etta Pearl.....		Shamrock.....	Callaway.

Name.	Studies.	Postoffice.	County.
Perry, Willis Campbell.....	M., L.	Phoenix, N. Y.	
Philbrook, Lee Elmo	M.	Kansas City.....	Jackson.
Potter, Maud.....	Fr.	Columbia.....	Boone.
Powell, Wm. Wallace.....	E., P., H.	Santa Fe	Monroe.
Powell, Nell Deadrick.. ..	E., H.	Thayer.....	Oregon.
Pratt, Clara Louise.....	E., Fr.	St. Louis City.	
Price, Perry Riley.....	H., Fr.	Plattsburg.....	Clinton.
Price, Nita A	E., S.	Harrisonville.....	Cass.
Reid, Angie.....	P., F-H-D.	Paris.	Monroe.
Renshaw, Nora Wille	E., H.	Tipton.....	Moniteau.
Robinson, Thos. Wright.. ..	E., Gr.	Macon.....	Macon.
Robinson, Roy D.....	H.	Appleton City....	St. Clair.
Robnett, Margaret	E.	Martinsburg... ..	Audrain.
Rocheford, Louise.....	E., G.	Shaw	Boone.
Rodhouse, Thos. Jacob.....	Fr.	Columbia	Boone.
Rodhouse, Mrs. Melissa J	Fr.	Columbia.....	Boone.
Rohrer, Ida Katherine.....	M., B.	Kasson, Minn.	
Rollins, Frank Bingham.....	H.	Columbia.....	Boone.
Ross, Lena Grace Kelley.....	M., P.	Carthage	Jasper.
Rouse, Birdie Laforce.....	S., Ag.	Brown's Station..	Boone.
Rowe, Harry C	H.	Appleton City	St. Clair.
Ruenzi, Williametta.....	F.	Columbia	Boone.
Russell, Eula Mary.....		Montgomery City	Montgomery.
Sames, Charles Frederick.....	P., B.	Centralia	Boone.
Sanford, Frances Margaret....	E.	Welch	Monroe.
Schlle, Henry.....	D.	Santa Fe, Arg.	Repub.
Schlierholz, Flora Mary.....	H., M., L.	Little Rock, Ark.	
Schmidt, Bertha Grace.....	E., Fr.	Hannibal	Marion.
Schmitt, Clara.	E., P.	Lowry City.....	St. Clair.
Schulte, Wm. Philip.....	E., H.	Oregon	Holt.
Schulte, Jessie.....	E., H.	Oregon	Holt.
Schulte, Carrie	E., Ag.	Oregon	Holt.
Shaefer, Jean Augusta... ..	M.	Columbia	Boone.
Shannon, Easton Adair.....	H.	Mt. Carmel.....	Audrain.
Sharp, Nathalie.....	Gr.	Kansas City	Jackson.
Shepherd, Geo. Shields.....	M.	Hannibal.. ..	Marion.
Shobe, Jacob Luster.	H., Ag.	Ladonia	Audrain.
Shurts, Clarence Loen.....	P., M.	Mason, Ohio.	
Simmons, Emma Gertrude.....	Fr., G.	Berryville, Ark.	
Sisson, Stanly.....	M.	Charleston, S. C.	
Sloan, Georgie Ona.....		Neosho.	Newton.
Small, Bessie	E., S.	Cuba	Crawford.
Smith, Earl Brenton.. ..	M.	Altoona, Iowa.	
Smith, Thomas Benton.....	E., H.	Polo	Caldwell.
Smith, Wm. Forrest.....	P., M.	Quincy, Oregon.	
Smith, Elmer.....	B.	Neosho	Newton.
Speer, Henry Wilson.....	B., Ag.	Knoxville, Tenn.	
Spohrer, Frank Otto.....	G., Hort.	Pottsdam	Gasconade.
Spragg, Earle Gordon.....	C., M.	Ridgeway	Harrison.
Sprague, Eva Light.....	F-H-D.	California	Moniteau.
Stean, Saldee May.....	P., L.	Arrow Rock.....	Saline.
Steele, Oliver Lee	Anat.	Carmi, Ill.	
Steele, Asa George.	Fr.	Carmi, Ill.	
Stephens, Edwin Sydney.....	H., Fr.	Columbia	Boone.
Stewart, Burns	M.	Chillicothe.....	Livingston.
Stoner, Charles Augustine.....	E.	Mt. Moriah.	Harrison.
Straszer, Adah Lee.....	E., M.	Tuxedo	St. Louis.
Sutton, Gertrude R.....	L., G.	Rockport	Atchison.
Sweet, Arthur T.	Geol.	Curryville	Pike.
Talbott, Carrie.	S., F-H-D.	Platte City.....	Platte.
Taylor, Howard Charles....	L.	Columbia	Boone.
Taylor, Wm. Roscoe.....	E., M.	Richmond	Ray.
Thatcher, Jessie Louise... ..	E.	Kansas City	Jackson.
Thomas, Florence Elizabeth...	S.	Miami Station	Carroll.
Thompson, Daisy.....	C., L.	Bevier.....	Macon.
Treasure, Jas. Franklin.....	M., P.	Chariton, Iowa.	

Name.	Studies.	Postoffice.	County.
•Turk, Lydia	M., H., Hort.	Festus	Jefferson.
Turnbull, Blanche Dorothy....	S., Ag.	Lamar... ..	Barton.
Turner, James Ernest.....	E., Gr.	Kansas City.....	Jackson.
Tuttle, Isaac Ruby.....	E., S.	Columbia	Boone.
Tyler, Earle Graves.....	E., M., G.	Howell	St. Charles.
Underwood, Franklin Mason..	F-H-D.	Kansas City.....	Jackson.
Urban, Fred Wagner.....	E., G.	Stewartsville	DeKalb.
Vance, Ina Mary.....	E., S.	Wintersville	Sullivan.
Veatch, Otto.....	Geol.	Jasper	Jasper.
Vera, Joseph M.....	P.	Santa Fe,.....	Arg. Rep.
Viles, Chas. Walter.....	E.	Bolivar	Polk.
Walker, Geo. Johnson	M.	Monroe City.....	Monroe.
Walker, Mary Shore.....	M.	Columbia	Boone.
Walters, Wm. Wade.....	E., Fr.	St. Louis City.	
Walton, Stonewall Jackson....	E., H., G.	Troy.....	Lincoln.
Ware, Hattie W.....	Fr., H.	Brookfield	Linn.
Watson, Malcolm Clyde	C., E.	Riggs.....	Boone.
Watts, Arretta Lynch.....	E., S.	Elsberry	Lincoln.
Welch, Austin Hubbard.....	D.	Columbia	Boone.
Welch, John Gunn.....	Gr.	Columbia	Boone.
Welch, Howard	G.	Columbia	Boone.
Wells, Sarah.....	E., M.	New Hope.....	Lincoln.
West, John Kemper.....	E., S.	Garden City.....	Cass.
Wharton, James LeRoy.....	M.	Columbia	Boone.
White, Addie.....	M., Ag., E.	Zadock.....	Stoddard.
Whitlock, Jennie Porter.....	P., S.	Paducah, Ky.	
Wilcox, David Bradford.	E., H.	Ashland	Boone.
Willhite, Benjamin Franklin...	P., G.	Barry	Platte.
Willis, Fiffle.....	L.	Columbia	Boone.
Wilson, Anna	S., F., N., D.	Chandler, Okla.	
Winchester, Luther.....	B.	Essex.....	Stoddard.
Winslow, Isabella Austin.....	Fr., L.	Kansas City.....	Jackson.
Withers, Jno. Thomas, Jr.....	Gr.	Poplar Bluff.....	Butler.
Wolff, Lucy Henrietta.....	L.	Columbia.....	Boone.
Wood, Mrs. Lela.....	F-H-D.	Hartville	Wright.
Wood, Oval Anthony.....	E., P.	Harrisburg	Boone.
Wood, Jas. Madison.....	Fr., H.	Boyer.....	Wright.
Wood, W. Logan	Anat.	Bolckow.....	Andrew.
Woodbury, Wm. Hook.....	Fr., E.	Lawrence, Kans.	
Woods, Melicent Irene....	F-H-D.	Clarinda, Iowa.	
Woolfolk, Florence.....	E., S.	St. Charles... ..	St. Charles.
Woolsey, Calvin Lee.....	P., B.	Braymer.....	Caldwell.
Wright, Nannie	S.	Mexico.....	Audrain.
Wright, Lena F.....	P., H.	Appleton City....	St. Clair.
Yunker, Blanche.....	G., L.	Louisiana.....	Pike.
Zumbrunnen, Emile Miles.....	E., G.	Braymer.....	Caldwell. —400

B. AT MOUNTAIN GROVE.

Name.	Studies.	Postoffice.	County.
Abernathy, Emma May..	E., M.	Longtown	Perry.
Anderson, Georgia May.....	E., L.	Perryville	Perry.
Bailey, Thelma Albritie	E., M.	Mountain Grove..	Wright.
Ballard, Nora.....	E., M.	Astoria	Wright.
Barker, Ona.....	E., M.	Topaz	Douglas.
Beighley, Laura M.....	E., M.	Mountain Grove..	Wright.
Benton, Mitchell.....	E., M.	Worsham.....	Wright.
Blackwood, Rosa Nellie.	E., M.	Mountain Grove..	Wright.
Blanchard, Olla.. ..	H., P.	Mountain Grove..	Wright.
Bridges, Silas Arthur.....	H., M.	Richville	Douglas.

Name.	Studies.	Postoffice.	County.
Brill, Hattie.....	E., M.	Astoria	Wright.
Bruffey, Aimee Matie.....	E., M.	Mountain Grove..	Wright.
Candler, Mayme Lanceford....	E.	Mountain Grove..	Wright.
Carter, John.	E., M.	Perryville	Perry.
Carter, Silas A.....	E., H.	Norwood	Wright.
Dayton, Mrs. Lillie Elsie	E., M.	Pallsade, <i>Col.</i>	
Deckard, John R.....	E., M.	Antrim	Wright.
Denny, Otto Ben.....	E., P.	Mountain Grove..	Wright.
Denny, Della.....	E., H.	Mountain Grove..	Wright.
Deyo, Charles H	E., M.	Mountain Grove..	Wright.
Dodson, William T	E., P.	Mountain Grove..	Wright.
Gladden, Minnie.....	E., M.	Turley	Texas.
Gladden, Arthur L	E., M.	Turley	Texas.
Grimes, Berta Marie.....	E., H.	Mountain Grove..	Wright.
Hamilton, Reuben Mortimer..	E., M.	Wolcott, <i>Ind.</i>	
Hoey, Ella.....	H., M.	West Plains	Howell.
Hood, Ranzy	H., P.	Hutton Valley....	Howell.
Hunter, Luther S.	E., M.	Hartville.. . . .	Wright.
Huntsman, Arlo Biddle.....	E., M.	Sedan.....	Douglas.
Jackson, John L.	M., P.	Nelson, <i>Neb.</i>	
Jackson, Bertha T.	E., M.	Mansfield	Wright.
Jones, Lula E.....	E., M.	Kansas City	Jackson.
Keller, Gertrude H.....	E., M.	Mountain Grove..	Wright.
Keller, Katharine	E., L.	Mountain Grove..	Wright.
Kendall, Ora.....	H., M.	Mountain Grove..	Wright.
Kennedy, Laura May.....	E., M.	Mountain Grove..	Wright.
Klingensmith, Alonzo.....	E., M.	Astoria	Wright.
Laughlin, Florence K.....	M., P.	Thayer	Oregon.
Mayberry, Amadore Jordan . .	E., M.	Mountain Grove..	Wright.
Mott, Jessie.....	E., M.	Hartville	Wright.
McKipley, Joseph	E., M.	Norwood.....	Wright.
Needham, Anna	E., M.	Mountain Grove..	Wright.
Newbro, Rosa Ellen.....	M., P.	West Plains	Howell.
Newton, William Athel.. . . .	H., P.	Hartville	Wright.
Palmer, Gertrude....	M., P.	Mountain Grove..	Wright.
Porter, Mrs. Ella N.....	H., P.	Fuson	Wright.
Quick, Myrtle G.....	H., M.	Mountain Grove..	Wright.
Reynolds, Thomas.....	H., M.	Eminence.....	Shannon.
Rinck, Bertie Estella.....	E., M.	Norwood	Wright.
Roberts, Alice.....	E., M.	Mountain Grove..	Wright.
Robertson, Elva.	M., P.	Palmyra, <i>Tenn.</i>	
Rush, James Frederick.....	E., M.	Cedar Gap	Wright.
Sanders, John Newton....	E., P.	Mountain Grove..	Wright.
Simon, Joy.....	E., M.	Mountain Grove..	Wright.
Singmaster, Rex Ondes.....	E., M.	Mountain Grove..	Wright.
Smith, Marie Lucile.....	E., M.	Biggs	Douglas.
Snead, Hester.....	M., P.	Cottbus	Howell.
Steger, Mary.....	M., P.	Mountain Grove..	Wright.
Stephens, Lewis S	E., P.	Mountain Grove .	Wright.
Stephens, Samuel H.....	M.	Mountain Grove..	Wright.
Stephens, Charles A.	E., P.	Mountain Grove..	Wright.
Stewart, Elizabeth.....	M., L.	Norwood	Wright.
Tate, Lewis B.....	E., M.	Huggins...	Texas.
Todd, Mrs. Mattie.....	E., H.	Turley.....	Texas.
Todd, Nettie.....	E., M.	Mountain Grove..	Wright.
Weed, James H..	E.	Mountain Grove..	Wright.
Wilks, Ralfe Lucian.....	E.	Mountain Grove..	Wright.
Williams, Edgar.....	H., P.	Roubidoux.....	Texas.

SUMMARIES

L Enrollment by Departments.

I. GRADUATE : Academic 38 Law 8 Agriculture 2 Engineering 8 <hr/> Total 46	VII. COLLEGE OF AGRICULTURE AND MECHANIC ARTS : <i>(a) School of Agriculture :</i> Graduate Students ... 2 Seniors 5 Juniors 8 Sophomores 15 Freshmen 20 Specials 29 Short Course (Animal Husbandry) 35 Short Course (Agr.)... 8 Short Course (Hort.).. 2 Short Course (Dairy).. 8 Household Economics.. 28 <hr/> Total 155
II. ACADEMIC : Graduate Students ... 38 Seniors 75 Juniors 98 Sophomores 127 Freshmen 175 Specials 86 <hr/> Total 594	<i>(b) School of Engineering :</i> Graduate Students 8 Seniors 31 Juniors 46 Sophomores 58 Freshmen 76 Specials 11 <hr/> Total 230
III. EDUCATION 141	
IV. LAW : Graduate Students..... 8 Juniors 37 First Year 58 Specials 18 <hr/> Total 111	
V. MEDICINE : Fourth Year 14 Third Year 12 Second Year 28 First Year 31 Specials 7 <hr/> Total 92	
VI. MILITARY SCIENCE AND TACTICS 162	VIII. SCHOOL OF MINES (Rolla) : Graduate Students 19 Seniors 16 Juniors 40 Sophomores 58 Freshmen 68 Specials 18 <hr/> Total 209

II. Students in Gymnasium.

Men	857	Women	187
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III. Young Men and Young Women.

(a) <i>Columbia</i> :	Men	Women	(b) <i>Rolla</i> :	Men	Women
Regular Session ...	824	286		205	4
Summer Session ...	281	178			
			<i>Columbia</i>	958	424
Totals ..	1055	464	<i>Rolla</i>	205	4
Counted twice ..	97	40			
			Totals ..	1163	428
Net totals ..	958	424			

IV. Total Enrollment.

Graduate Students		46
Academic		594
Education		141
Law		111
Medicine		92
Military Science and Tactics		162
College of Agriculture and Mechanic Arts {	a. Agriculture ...	155
	b. Engineering....	230
		885
Summer Session, at Columbia		409
School of Mines		209
Total		2149
Names counted twice		558
Total number of individual students		1591
Total number at Columbia		1882
Total number at Rolla.....		209

V. Counties Represented in the University at Columbia.

Adair	8	Boone	252
Andrew	4	Buchanan	18
Atchison	4	Butler	6
Audrain ..	34	Caldwell	18
Barry	1	Callaway	7
Barton	9	Cape Girardeau	4
Bates	15	Carroll	11
Benton	4	Carter	1
Bollinger	1	Cass ..	28

Cedar	7	Moniteau	12
Chariton	14	Monroe	26
Christian	8	Montgomery	8
Clark	2	Morgan	1
Clay	15	Newton	7
Clinton ..	11	Nodaway	21
Cole	4	Oregon	1
Cooper	11	Osage	1
Crawford	1	Ozark	1
Dade	12	Pemiscot ..	1
Dallas ..	4	Perry	3
Davless	8	Pettis	27
Dekalb	3	Phelps	1
Dent	1	Pike	11
Dunklin	8	Platte	5
Franklin	7	Polk	7
Gasconade	6	Pulaski	1
Gentry	14	Putnam	3
Greene	7	Ralls ..	8
Grundy	14	Randolph	12
Harrison	14	Ray	10
Henry	21	Ripley	3
Hickory	1	St. Charles	6
Holt ..	18	St. Clair	14
Howard	8	St. Francois	7
Howell	1	Ste. Genevieve	2
Iron	2	St. Louis	21
Jackson	85	Saline	18
Jasper	28	Schuyler	9
Jefferson ..	6	Scotland	3
Johnson	7	Scott	5
Knox	2	Shannon	1
Laclede	2	Shelby	10
Lafayette	14	Stoddard ...	7
Lawrence	6	Stone	1
Lewis ..	8	Sullivan	4
Lincoln	14	Texas	4
Linn	15	Vernon	10
Livingston	9	Warren	2
Macon	17	Washington	5
Madison	1	Wayne	2
Marion	22	Wright	2
Mercer	3	City of St. Louis.....	30
Miller	1		
		Total	1205

Number of counties represented (including city of St. Louis).... 105
Number of counties not represented 10

VI. States, Territories and Foreign Countries Represented at Columbia.

Alabama	8	North Carolina	1
Arkansas	11	Ohio	4
California	6	Oklahoma	1
Colorado	4	Oregon	1
Connecticut	1	Pennsylvania	12
Florida	1	South Carolina	2
Georgia	1	South Dakota	1
Idaho	2	Tennessee	2
Illinois	26	Utah	3
Indiana	6	Vermont	1
Iowa	15	Virginia	2
Kansas	19	Washington	1
Kentucky	7	West Virginia	1
Louisiana	8	Wisconsin	2
Maine	1	New Mexico	2
Massachusetts	8	Indian Territory	4
Michigan	4	Cuba	1
Minnesota	2	Puerto Rico	1
Mississippi	1	District of Columbia	2
Missouri	1205	Argentine Republic	2
Montana	1	Japan	1
Nebraska	1	China	1
New Hampshire	1	Ecuador	1
New York	8	Ontario	1
		Total	1382

VII. Counties Represented in the School of Mines.

Adair	1	Jefferson	1
Audrain	1	Laclede	4
Barry	1	Lawrence	2
Bates	1	Macon	1
Buchanan	3	Maries	1
Butler	1	Marion	1
Callaway	1	Miller	1
Carroll	1	Newton	2
Clay	1	Nodaway	3
Clinton	1	Pettis	1
Crawford	1	Phelps	24
Dade	1	Pike	1
Dent	3	Platte	1
Franklin	1	Pulaski	1
Gentry	1	St. Francois	1
Greene	3	St. Louis	3
Grundy	1	Texas	1
Harrison	1	Webster	2
Howard	1	Worth	1
Iron	2	St. Louis City	26
Jackson	14		
Jasper	3	Total	122

**VIII. States, Territories and Foreign Countries Represented in
the School of Mines.**

Arizona	8	New York	6
Arkansas	2	North Carolina	1
California	2	North Dakota	1
Colorado	14	Ohio	2
Florida	1	Pennsylvania	8
Idaho	1	Rhode Island	1
Illinois	7	South Dakota	1
Indiana	1	Tennessee	2
Iowa	4	Texas	8
Kansas	8	Utah	2
Kentucky	2	Virginia	1
Massachusetts	1	Wisconsin	1
Michigan	1	Germany	2
Missouri	122	Mexico	4
Nebraska	8	West Indies	1
Nevada	1		
		Total	209

CERTIFICATES, DEGREES AND HONORS, COMMENCEMENT, 1902.

(A). COLUMBIA.

I. CERTIFICATES.

Department of Military Science and Tactics.

Arthur Robert Eltzen, <i>cum laude</i> .	Roy Oswald Maddox.
John Roswell Evans, <i>cum laude</i> .	Omar Elmer Malsbury.
Fred Kelsey, <i>cum laude</i> .	Edgar Stables Maupin.
Elmer Egerton Percy, <i>cum laude</i> .	Franklin Julius Miller.
Ernest Franklin Robinson, <i>cum laude</i> .	Oliver Monroe Morrison.
Archibald Murray Allen.	John Emmet Price.
Elmer Jackson Allen.	†Paul Drennan Raybourn.
James Harry Barnes.	John Edward Rayl.
Norman Clark Barry.	Samuel Orrick Rice.
George Anthony Brown.	George Livingstone Rieger.
Herbert E. Brown.	Thomas Wright Robinson, Jr.
John Griest Brown.	Oswaldo Rubio.
Charles Walden Canada.	Lacy Parks Schooling.
Norman John Cole.	Pryor T. Scott.
Byron Cosby.	Charles T. Sears.
Joseph Thomas Davis.	Herbert I. Sears.
Roy Lee Gleason.	Thomas K. Smith.
Ernest Abner Green.	Walter J. Spalding.
James Lemmon Hamilton.	Charles A. Talbot.
William Thomas Harvey.	Luther W. Tennyson.
David Franklin Huddle, Jr.	Richard Samuel Thompson.
Oliver Anderson Jeffries.	Guy Titsworth.
Luther Elman Johnson.	Charles Joseph Walker, Jr.
Floyd Lee Kelso.	Stonewall Jackson Walton.
Charles Newton Larkam.	Robert C. White.
C. M. Long.	John H. Zollinger, Jr.

Household Economics.

Harriet Dupee Gerould.

Department of Education.

Two Year Certificate.

Carter Alexander.	Mildred Durette Lewis.
Ewell Martin Carter.	Gertrude Liggett.
Charlotte Calvin Cochel.	Benjamin Franklin Lutman.
Edith Ione Elliott.	Oliver Monroe Morrison.
Blanche Earle Enyart.	William Frederick Niebruegge.
Dora M. Hennecke.	Bessie Roberts Palmer.
Ollene Gilmer Hulett.	Maud Lillian Pitman.
Gertrude Sarah Kennedy.	Malcolm Clyde Watson.
Clint Allen Laffoon.	Flora Whiteford.

†Died at Columbia, Mo., January 24, 1903.

Life Certificate.

William Daniel Bannister.
 Irene Elise Blair.
 Frederick Augustus Braun.
 Lou Belle Caldwell.
 Charles Burton Davis.
 Charles Alexander Deppe.
 Bessie Duffy.
 Helene Margaret Evers.
 Guy Kenneth Foster.
 James Richie Fountain.
 John Scott Harrison.
 Bishop Hathaway.
 William Frederic Hauhart.
 Charles Forest Henderson.
 Homer Allin Hill.
 Nelson Orlando Hopkins.
 Shrader Preston Howell.
 Charles Oscar Jenkins.

William Clyde Johnson.
 Loren Gilmore Jones.
 Theckla Kahn.
 Elida Caroline Kirchner.
 Strausie McCaslin.
 Helen Belle Montgomery.
 Lucy Olive Morehead.
 Anna Gray Newell.
 Sara Brewer Frances Rabourn.
 Susie McDowell Weldon Rabourn.
 Thomas Orrin Ramsey.
 Robert Lee Reid.
 Floyd Wilkins Tuttle.
 Franklin Mason Underwood.
 Sallie Elliott Ashby Watson.
 Pearl Westlake.
 Benjamin Franklin Willhite.
 Mellicent Irene Woods.

II. DEGREES.

School of Engineering.1. *Degree of Bachelor of Science in Civil Engineering (B. S.).*

Samuel Bailey Houx.
 Edward Gleim Maclay.
 John McClure Salmon.

Frank Leslie Wilcox.
 Thomas Albert Williams.
 Charles Wayne Wood.

2. *Degree of Bachelor of Science in Electrical Engineering (B. S.).*

Henry Carter DonCarlos.
 Lloyd Carlton Nicholson.

Lonnle John Pierce.

3. *Degree of Bachelor of Science in Mechanical Engineering (B. S.).*

John Alvin Brundige.
 George Lawrence Morehead.

Walter Rautenstrauch.
 Gay Aufrecht Robertson.

Department of Medicine.*Degree of Doctor of Medicine (M. D.).*

(The Department of Medicine presented no candidates for the Degree of Doctor of Medicine (M. D.), the Course leading to that degree having been extended, at the beginning of the Session of 1901-2, from Three Years to Four Years.)

Department of Law.1. *Degree of Bachelor of Laws (LL. B.).*

Walter Lee Chaney, *cum laude*.
 Hosea Vise Ferrell, Jr., *cum laude*.
 Stonewall J. Walton, *cum laude*.
 Thomas P. Woodson, *cum laude*.
 (A. M., DePauw Univ., '98.)
 Alexander Lake Anderson.

(A. B., Allegheny Coll., Alderson,
 W. Va.)

Lilbourne Morr's Anderson.
 John Wesley Armstrong.
 Mercer Arnold.
 (B. L., Univ. of Mo., '00.)
 Hugh Glenn Bass.
 William Beatty.
 Wallace McDowell Benson.
 Henry Fred Birdseye.

John Henderson Bradley.
 Harry Howard Broadhead.
 John Griest Brown.
 Arthur Bruton.
 Walter Burch.
 William Bledsoe Burruss.
 John Gore Cable.
 Robert Looney Caruthers.
 Frederick Charles Cleary.
 (A. B., Univ. of Mo., '99.)

David Andrew Cripps.
 Newton Corwin Cunningham.
 Dudley LeRoy Dempsey.
 Edward Livingston Drum.
 Ralph Hereford Duggins.
 Frederic Austin Duncan.
 Ross Elmer Feaster.
 Eldon Jacob Fisher.
 Lumley Hall Frey.
 Charles Lewis Gallant.
 James Abraham Gilker.
 Lewis Brosius Gillihan.
 Silas Lee Gladish.
 Lawson Welser Greathouse.
 (B. S., Central Norm. Coll., Ind.)
 Ralph Waldo Emerson Grier.
 Ben Reynolds Hall.
 Albert Prather Hamilton.
 Archie Luke Hilpert.
 Hobson Hoar.
 Roy Abner Hockensmith.
 (A. B., Pres. Coll., Upper Mo., '96.)
 George Houck, Jr.

Lewis Linn Hunter.
 (A. B., Univ. of Mo., '00.)
 George James.
 Edward Ross Jones.
 Royal Homer Love.
 Thomas Nelson Marlowe.
 John Lafayette Maynard.
 Franklin Julius Miller.
 James Patterson McBaine.
 Frank James McCaslin.
 Benjamin Mayberry Neale.
 Cleveland Alexander Newton.
 Charles Paschal Palmer.
 Joe Robert Palmer.
 John Parman.
 John Patrick Peters.
 Felix Oliver Poston.
 Perry Riley Price.
 Roy D. Robinson.
 Harry E. Robinson.
 Berten Lee Robison.
 Wade Hampton Rothwell.
 Oliver Evans Saylor.
 Frederick Charles Schafer.
 Charles Thatcher Sears.
 Russell Aubrey Shaw.
 Denny Coulter Simrall.
 (A. B., William Jewell.)
 Charles Lane Triplett.
 Dan Proctor Violet.
 Joseph Peter Wagner.
 James Theodore Walter.

2. Degree of Master of Laws (LL. M.).

Arthur Bernhardt Knipmeyer.
 (LL. B., Wash. & Lee Univ.)

George Herbert Moore.
 (LL. B., Univ. of Mo., '01.)

School of Agriculture.

Degree of Bachelor of Agriculture (B. Agr.).

William Bert Hoag.
 Carrie Ruth Jackson.

Albert Early Parkhurst.

Academic Department.

1. Degree of Bachelor of Arts (A. B.).

William Daniel Bannister.
 Frank Adolph Bernstorff.
 Arthur Gieger Black.
 Irene Elise Blair.
 Emma Boardman.
 John Sidney Boman.

Thomas Bond.
 Frederick Augustus Braun.
 Milton Clarence Burk.
 William Bledsoe Burruss.
 Ella Adeline Busch.
 Lou Belle Caldwell.

Granville Malcolm Cole.
 Laura Henry Dashiell.
 Charles Burton Davis.
 Milton Matthews Dearing.
 Charles Alexander Deppe.
 Charles Clifford DuBois.
 Bessie Dufty.
 Virginia Bouchelle Dyas.
 Ernest Howard Favor.
 Guy Kenneth Foster.
 Asa Dillard Foster.
 James Richie Fountain.
 Leo Gallaher.
 Benajah Pitts Gentry.
 James Edgar Gibson.
 Joseph Marr Gwinn.
 Charles Mortimer Hamilton.
 John Scott Harrison.
 Bishop Hathaway.
 Charles Forest Henderson.
 Nelson Orlando Hopkins.
 Thomas Perry Howard.
 Shrader Preston Howell.
 Carrie Ruth Jackson.
 Richard Henry Jesse, Jr.
 Oliver Thiel Johnson.
 William Clyde Johnson.
 Loren Gilmore Jones.
 Theckla Kahn.
 Victor Bancroft Kleffer.
 George Leavenworth.
 Cassius M. Leib.

Stanley Madison Masters.
 Helen Belle Montgomery.
 Maud Ellis Montgomery.
 Olin Harris Moore.
 William Dunn Moore.
 Lucy Olive Morehead.
 Ernest Earl Morlan.
 Strausie McCaslin.
 Florence M. Nesbitt.
 Anna Gray Newell.
 James Arthur Potter.
 Sara Brewer Frances Rabourn.
 Susie McDowell Weldon Rabourn.
 Thomas Orrin Ramsey.
 Robert Lee Reid.
 Harry E. Robinson.
 Roy D. Robinson.
 Frederick Charles Schafer.
 William Russell Scudder.
 †Oliver Garfield Shumard.
 Alfred Hannah Smith.
 Sue Marie Stone.
 Floyd Wilkins Tuttle.
 Franklin Mason Underwood.
 Fred Wagner Urban.
 Charles Walter Viles.
 George Johnson Walker.
 Maurice Wallbrunn.
 Sallie Elliott Ashby Watson.
 Albert D. Whealdon.
 Benjamin Franklin Willhite.
 Mellicent Irene Woods.

2. Degree of Master of Arts (A. M.).

Amanda Fredericka Becker,
 (B. S., Univ. of Mo., '01.)
 William Wilson Elwang,
 (A. B., S.-W. Pres. Univ., '88.)
 Helene Margaret Evers,
 (A. B., Wash. Univ., '99.)
 Truman Leigh Hamlin,
 (A. B., West. Res. Univ., '99.)
 Fanny Belle Hatcher,
 (A. B., Univ. of Mo., '01.)
 William Frederick Hauhart,
 (A. B., Univ. of Mo., '01.)
 Homer Allin Hill,
 (A. B., Park College, '97.)

Louis Ingold,
 (A. B., Univ. of Mo., '01.)
 Charles Oscar Jenkins,
 (A. B., Univ. of Mo., '01.)
 Elida Caroline Kirchner,
 (A. B., Wash. Univ., '99.)
 Grace Eugenie MacMillan,
 (A. B., Univ. of Neb., '99.)
 Lulu Edith Nichols,
 (A. B., Drury College.)
 Guy Edward Snider,
 (B. L., Wis. Univ., '01.)

†Deceased.

Honorary Degree of Doctor of Laws (LL. D.).

Robert Somers Brookings. St. Louis, Bureau of Plant Industry, Wash-
Mo. ington, D. C.
Samuel Langhorne Clemens, New Ethan Allen Hitchcock, Secretary
York City, N. Y. of Interior, Washington, D.
Beverly Thomas Galloway, B. Agr, James Wilson, Secretary of Agri-
University of Mo., '84; Chief of culture, Washington, D. C.

III. PRIZES, MEDALS, SCHOLARSHIPS, AND HONORS.

The Dachsel Prize (Engineering). (Not Awarded.)

The Prize Essays, Department of Law.—*Joint and Several Liabilities in Contract Law.*

First (The Edward M. Thompson American and English Encyclopedia of Law Prize). Walter Lee Chaney.

Second. Hosea Vise Ferrell.

The William J. Bryan Medal (Political Science). Charles A. Blair.

The William S. Woods Prize (Missouri History). Henry Thomas Moore.

The Laws Medal (Astronomy). (Not Awarded.)

The McAnally Medal (English). Alfred Hanna Smith.

The Military Cup. Company B, Capt. Mercer Arnold.

The Military Medal. Private James Newton Price.

The Marksmanship Medal. Private Rufus Ward McConnell.

The Stephens Medal (Oratory). Cleveland Alexander Newton.

The James S. Rollins Scholarships, Department of Medicine (Two.) Thornton Easley Moore, and Elexious Thompson Bell.

The James S. Rollins Scholarship, Department of Law. James Eroica Landon.

The James S. Rollins Scholarship, College of Agriculture and Mechanic Arts (School of Agriculture). Job Marcus Doughty.

The James S. Rollins Scholarship, College of Agriculture and Mechanic Arts (School of Engineering). Milo Hamilton Brinkley.

The James S. Rollins Scholarships (Two), Academic Department. Henry Thomas Moore, and Mary Shore Walker.

Valedictorian in Medical Department not appointed, there being no Graduating Class.

Valedictorian in the Law Department. Stonewall Jackson Walton.

Valedictorian in the College of Agriculture and Mechanic Arts (School of Engineering). John Alvin Brundige.

Valedictorian in the College of Agriculture and Mechanic Arts (School of Agriculture). Albert Early Parkhurst.

Valedictorian in the Department of Education. Benjamin Franklin Willhite.

Valedictorian in the Academic Department. Milton Matthews Dearing.

(B.) ROLLA, MISSOURI.**I. CERTIFICATES.***Special Course in Assaying and Chemical Analysis.*

Herbert Arno Roesler.

Joseph Clark, Jr.

Special Course in Surveying.

Stanley Ralston Moore.

Raphael Currier Alexander.

Henry Lilburn Gray.

Elmer Cooper Heck.

Special Course in Mining.

Raphael Currier Alexander.

II. DEGREES.**1. Degree of Engineer of Mines (E. M.).**

Edwin Thompson Perkins.

Hermann Otto Schulze.

Abraham Leonardo Fernandez.

2. Degree of Bachelor of Science in Mining Engineering (B. S.).

Carlos Efrén Martínez.

Albert Hill Fay.

George Edwin Lyman.

Benjamin Newton Norton.

Harry Noel Rex.

John Lewis Pickles.

Ernest Albert Mortland.

Lawrence May.

Edward James Morris.

3. Degree of Bachelor of Science in Civil Engineering (B. S.).

Francis Henry Walsh.

4. Degree of Bachelor of Science in Chemistry and Metallurgy (B. S.).

Albert Dyke Wilson.

5. Degree of Bachelor of Science (B. S.).

Cornelius Mark Dally.

APPENDIX

SUMMER SESSION OF THE UNIVERSITY

In the Summer Session of 1902, the following Courses were offered :

Agriculture, one course.	Greek, three courses.
Biology, three courses.	History, two courses.
Chemistry, two courses.	Horticulture, one course.
English, three courses.	Latin, three courses.
Freehand Drawing, two courses.	Mathematics, three courses.
French, two courses.	Physics, two courses.
German, three courses.	Sloyd, two courses.

The Summer Session opens the first Monday in June and continues for thirteen weeks including the time given to registration and examinations. The Session consists of two terms of six and a half weeks each. The courses are planned to meet the wants of teachers and also of other persons who desire to spend a portion of the vacation period in systematic study.

There are no formal examinations for admission. Students are admitted to such courses as they are prepared for.

The maximum credit that a student may receive for one term's work is six hours; for two terms' work, twelve hours.

The grades made in the Summer Session are accepted by the State Superintendent and by County Boards in lieu of examinations for teachers' certificates.

The fee for admission is \$5 for the session of thirteen weeks or any part thereof. Each student who takes laboratory work in Agriculture, Biology, Chemistry, Horticulture, Physics or Sloyd is required to make a deposit of \$5 with the Proctor of the University to cover laboratory fee of \$2.50, and damage to or loss of University property.

Good board, including room and service, may be had in private families at from \$3 to \$4.50 per week. If the students choose to organize themselves into a club the expense of living may be much reduced.

All the railroads of the state for three summers have granted a rate of a fare and a third for the round trip.

For further information in regard to the Summer Session, and for Circular of the Summer Session of 1903, address

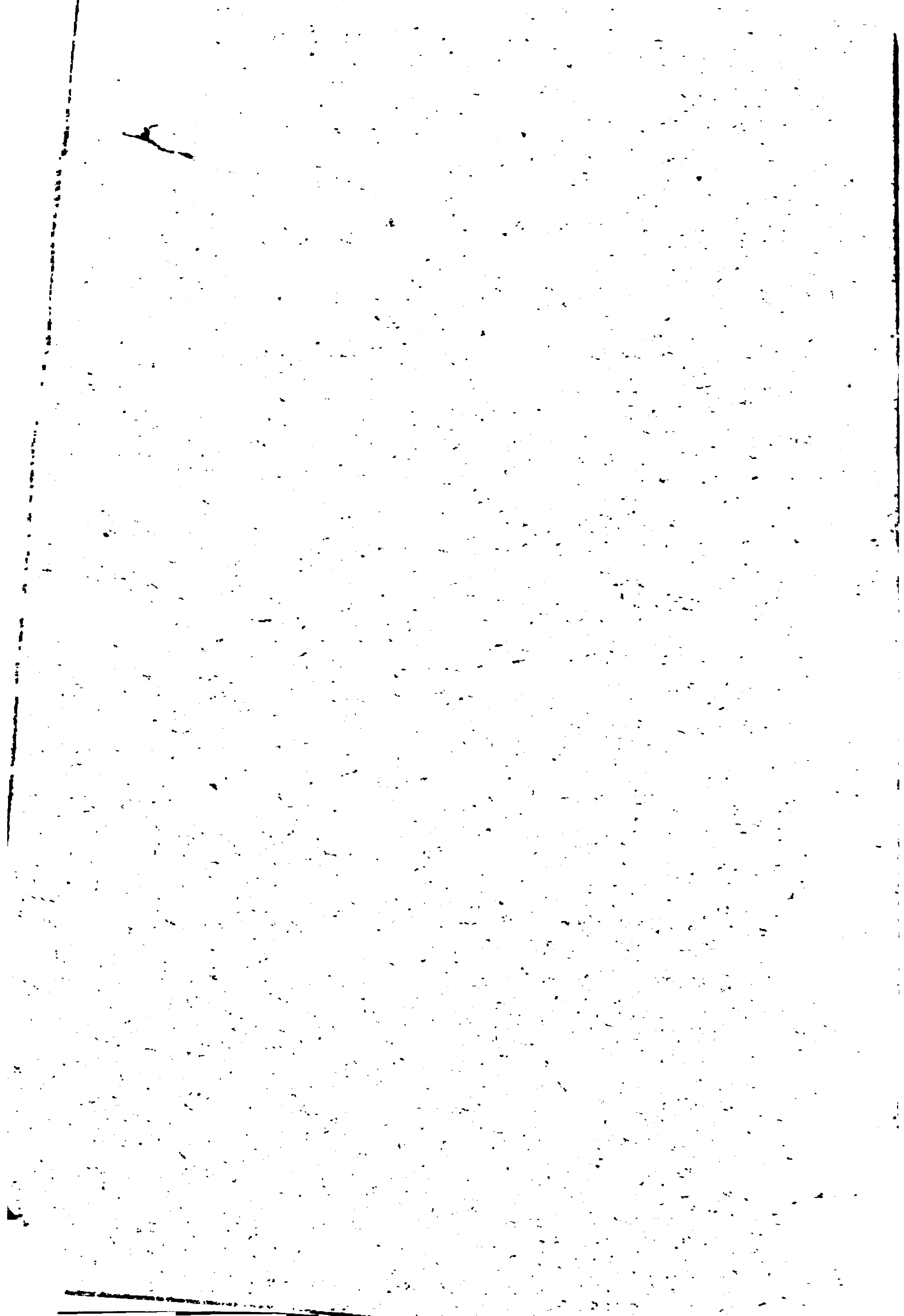
J. C. JONES, Director,
Columbia, Missouri.

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"Religion, morality and knowledge being necessary to good government and the happiness of mankind, schools and the means of education shall forever be encouraged." Ordinance of 1787.

UNIVERSITY OF MISSOURI

CATALOGUE

SIXTY-SECOND REPORT OF THE CURATORS TO THE GOVERNOR
OF THE STATE

1903-1904

COLUMBIA, MISSOURI

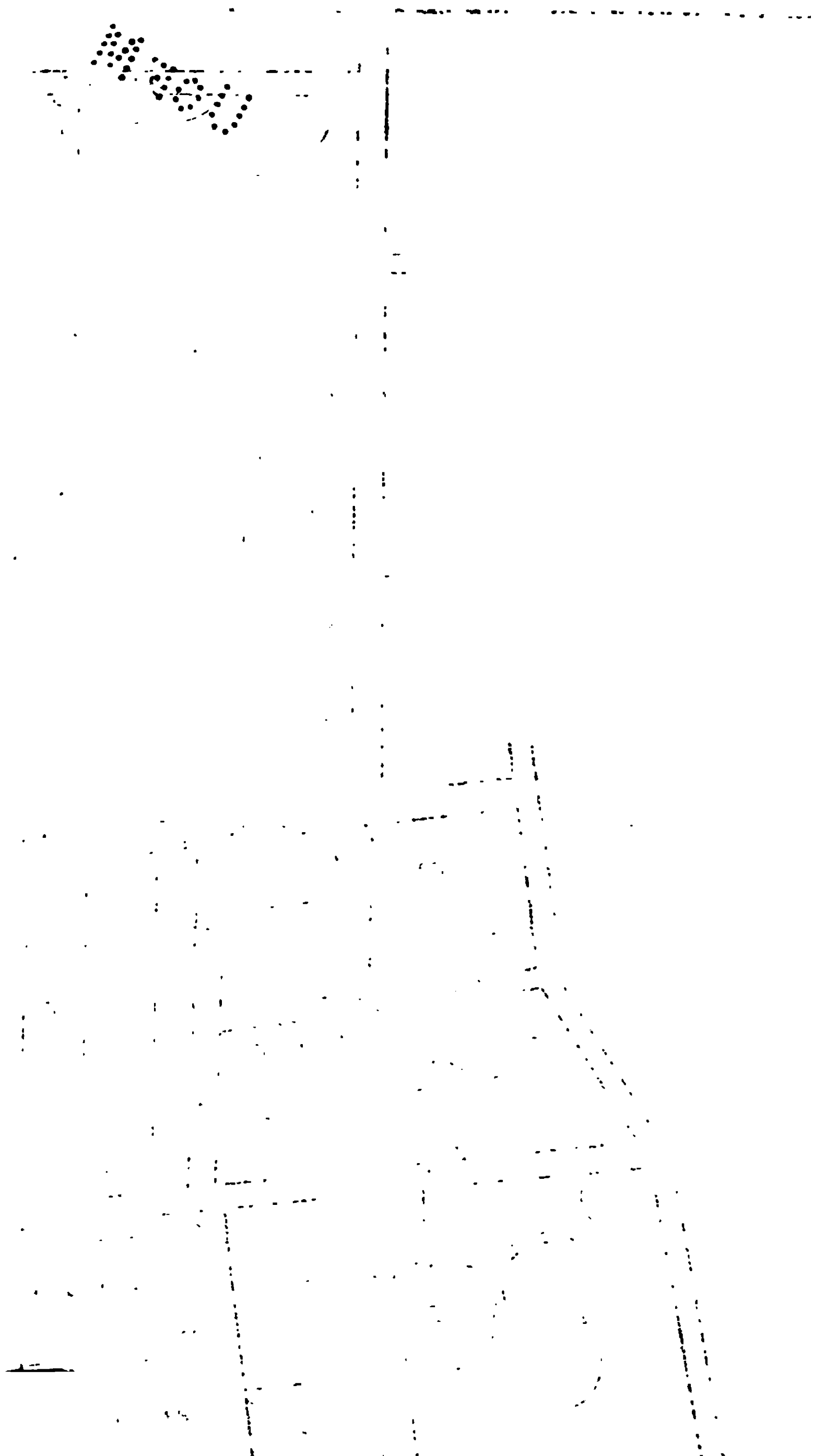
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UNIVERSITY CALENDAR.

At Columbia.

- 1904—May 30 to June 1.....Entrance Examinations
June 6, Monday.....Summer Session Begins
September 12, 13, 14.....Entrance Examinations
September 13, Tuesday.....All Departments Open
November 23, Wednesday, 4 p. m., to November
28, Monday, 8:30 a. m.....Thanksgiving Holidays
December 20, Tuesday.....Semi-Annual Meeting of the Curators
December 22, Thursday, at 4 p. m., to }.....Christmas Holidays
1905—January 10, Tuesday, at 8:30 a. m.
January 9, Monday.....Memorial Day
January 23-28.....Mid-Year Examinations
January 30 to February 1.....Entrance Examinations
January 31, Tuesday.....Second Semester Begins
April 6.....Quarterly Meeting of the Curators
May 29 to June 3.....Final Examinations
June 3, Saturday.....Stephens Medal Contest
June 4, Sunday.....Baccalaureate Sermon
June 5, Monday.....Class Day
June 6, Tuesday.....Alumni and Phi Beta Kappa Day
June 7, Wednesday.....Annual Meeting of the Curators
June 7, Wednesday.....Commencement Day

At Rolla.

- 1904—September 17 and 19, Saturday and Monday
9 a. m.....Entrance Examinations
September 20, Tuesday.....First Term Begins
October 3.....Quarterly Meeting of the Curators
November 24, Thursday.....Thanksgiving Holidays.
December 21, Wednesday, at 12 m.....Christmas Holidays Begin
1905—January 2, Monday.....Second Term Begins
March 21, Wednesday.....Third Term Begins
June 5, Friday.....Commencement

The Board of Curators and the Faculty reserve the right, without further notice, to modify any announcement made in this catalogue, if circumstances should render such change necessary, and they will be bound by it in any event only for the session following the date of publication.

SCHEDULE OF EXAMINATIONS.

Hour of Recitation.	Time of Examination.
8:30 M. W. F.....	9-12 Monday of examination week.
8:30 T. Th. S.....	2-5 Monday of examination week.
9:30 M. W. F.....	9-12 Tuesday of examination week.
9:30 T. Th. S.....	2-5 Tuesday of examination week.
10:30 M. W. F.....	9-12 Wednesday of examination week.
10:30 T. Th. S.....	2-5 Wednesday of examination week.
11:30 M. W. F.....	9-12 Thursday of examination week.
11:30 T. Th. S.....	2-5 Thursday of examination week.
2 M. W. F.....	9-12 Friday of examination week.
2 T. Th. S.....	2-5 Friday of examination week.
3 M. W. F.....	9-12 Saturday of examination week.
3 T. Th. S.....	2-5 Saturday of examination week.
4-5 M. W. F.....	9-12 Monday following examination week.
4-5 T. Th. S.....	2-5 Monday following examination week.

FOR ONE HOUR SUBJECTS:

Classes reciting on Monday only, will have from 8 to 10 on M., T., W., Th., F., or S., according as they recite at 8:30, 9:30, 10:30, 11:30, 2 or 3 respectively.

Classes reciting on Wednesday only, will have from 10 to 11 on M., T., W., Th., F., or S., according as they recite at 8:30, 9:30, 10:30, 11:30, 2, or 3 respectively.

Classes reciting on Friday only, will have from 11 to 12 on M., T., W., Th., F., or S., according as they recite at 8:30, 9:30, 10:30, 11:30, 2 or 3 respectively.

Classes reciting on Tuesday only, will have from 1 to 3 on M., T., W., Th., F., or S., according as they recite at 8:30, 9:30, 10:30, 11:30, 2 or 3 respectively.

Classes reciting on Thursday only, will have from 3 to 4 on M., T., W., Th., F., or S., according as they recite at 8:30, 9:30, 10:30, 11:30, 2 or 3 respectively.

Classes reciting on Saturday only, will have from 4 to 5 on M., T., W., Th., F., or S., according as they recite at 8:30, 9:30, 10:30, 11:30, 2 or 3 respectively.

Classes coming 2, 4, 5, or 6, times a week, can easily find an examination period or periods from the above. For example, a class coming at 9:30 on M. W. would have 8:11 Tuesday of examination week.

Monday following examination week is reserved for all other classes and for conflicts.

REPORT OF THE BOARD OF CURATORS.

COLUMBIA, Mo., 1 March, 1904.

To His Excellency, A. M. DOCKERY, *Governor of Missouri*:

SIR:—I have the honor herewith to present the Annual Catalogue of the University of Missouri, giving a review of the work for 1903-1904, and outlining the programme for the scholastic year of 1904-1905.

RESIGNATIONS, APPOINTMENTS, AND PROMOTIONS.

At Columbia: Late in the spring and during the summer of 1903 there were the following resignations, appointments, and promotions at Columbia, not mentioned in the Catalogue for 1902-3:

The Law Department has been entirely reorganized for the session of 1903-4. The reorganization was made necessary by the death of Judge Alexander Martin, the Dean, and by the resignation of Professor James A. Yantis. Professor John D. Lawson has been promoted from a chair in the Law Department to the office of Dean. The choice of the Curators fell upon Mr. E. W. Hinton as successor to Judge Martin in Pleading and Practice, and as successor to Mr. Yantis they have elected Dr. V. H. Roberts. The large enrollment in this Department made it necessary to employ as Assistants Mr. H. D. Murry and Mr. Milton R. Conley, both of Columbia. In the place of these two Assistants the Board has decided to appoint an Assistant Professor of Law for the session of 1904-5.

In Medicine, Dr. W. J. Calvert has been made Assistant Professor of Internal Medicine in charge of the laboratory work. Dr. C. M. Sneed has been made Assistant (for one year) in Bacteriology and Pathology. Dr. Waldemar Koch was elected Assistant Professor of Physiological Chemistry (perhaps it might better be called chemical physiology,) and Pharmacology. He took his seat in January, the salary beginning with his coming. The changes in Anatomy will be mentioned below in a paragraph relating to furloughs. Dr. Eugenia Metzger has been elected Assistant in Physiology. Dr. T. E. Moore has been made Interne in the Parker Memorial Hospital and Dr. C. A. Good, for the present session only, was retained as House Surgeon. After this session it will be possible to secure internes of such quality as to render unnecessary a House Surgeon.

The Department of Education has been entirely reorganized. Professor J. M. White resigned the Chair of Theory and Practice of Teaching, and Mr. William McGuffey Hoge resigned his office as Examiner of Schools. As Head of the Department of Education the Curators elected Professor A. Ross Hill, and appointed as acting Assistant Professor for the same Department Mr. W. B. Elkin. These two gentlemen during the present session have done the teaching in Education and so far as possible they have examined schools. For the session of 1904-5 two new Professors in this Department will be appointed and also an Examiner of Schools. The term of Mr. Elkin was for this year only unless he should be elected to one of the vacancies mentioned above.

In the College of Agriculture certain changes were made in connection with the furlough of Professor Waters which will be enumerated below. The vacancy created by the resignation of Mr. E. L. Shaw, Assistant in Agriculture, has not yet been filled through difficulty in finding within the limits of reasonable salary a satisfactory man. Mr. George J. Reeves has been made Assistant in Entomology. Mr. E. H. Favor, who was last year Assistant in Botany, has for this year been serving as Assistant in Experiment Station work in Horticulture. Dr. R. M. Bird, who last year acted as substitute for Dr. Paul Schweitzer during his absence in Europe on furlough, has been made Instructor in Agricultural Chemistry. Dr. R. J. Foster has been made Instructor in Veterinary Surgery. Dr. G. M. Tucker has resigned his position as Instructor in Agronomy. His successor will be appointed in time for the fall of 1904-5. Late in the summer of 1903 Captain W. D. Chitty, Commandant of Cadets, having determined to apply for restoration to his regiment, the Curators deemed it wise to pay him a salary of \$600 and thus to retain his services for the present session. Miss Mary Estelle Porter, for many years Instructor of Commercial Studies, has resigned her position and the work is discontinued. The same is true of Miss Jane A. L. Zabriskie, who for many years taught Household Economics. Before the reorganization of the Department of Education is completed we expect to establish again the teaching of Household Economics. It will be intimately connected with the Teachers College on one hand and the College of Agriculture on the other. Probably because of lack of money, we shall not be able to restore this instruction in the session of 1904-5.

In the College of Engineering Mr. W. S. Williams, Instructor in Civil Engineering, has been promoted to the rank of Assistant Professor, and Mr. A. L. Hyde has been elected Assistant Professor, his work to be chiefly in bridges. Mr. C. W. Hodsdon, Instructor here last session in Mechanical Engineering, has resigned and has been succeeded by Mr. J. H. Wallace, who also has the title of Instructor. Mr. A. C. Duncan has been retained

for this year as Instructor in Shopwork. He is aided by some Student Assistants. As stated in the last catalogue, Professor L. M. Defoe was made Professor of Mechanics and Applied Mathematics. Most of his work is done in the Department of Engineering. Mr. L. C. Nicholson has been appointed Instructor in Electrical Engineering. The changes in Mechanical Drawing will be noted below in a paragraph pertaining to furloughs.

In the Academic Department in addition to the changes made by the granting of furloughs, to be mentioned later, a number of other changes have occurred. Professor J. N. Fellows resigned the Chair of Mathematics and Dr. A. B. Coble resigned an Instructorship in the same subject. As Professor of Mathematics the Curators have elected Dr. E. R. Hedrick and as Instructor in the same subject Mr. L. D. Ames. As Assistants in Mathematics they have appointed Mr. Louis Ingold, Mr. W. H. Zeigel, and Miss Fannie B. Hatcher. In Botany Mr. E. H. Favor, as mentioned above, has been transferred to Experiment Station work in Horticulture with the title of Assistant, and in his place as Assistant in Botany Mr. Charles Brooks has been appointed, while Mr. H. S. Reed has been made Instructor. Assistant Professor R. E. Bassett has gone to the University of Kansas. In his place Miss Ellen Douglass has been appointed, for one year only, with the title of Instructor. Mr. C. C. Eckhardt has been made Assistant in History. Miss Mary Elizabeth Lewis has been elected Adviser of Women and Head of Reed Hall; she will do some teaching in English. To aid in the immense work of this subject Mr. L. R. Whipple and Mr. A. S. Neilson have been appointed Assistants. Mr. M. L. Lipscomb, while still retaining his title of Professor of Physics, has been made Superintendent of Buildings and Grounds, Supervisor of Club Houses for Men, and Editor of the Catalogue. With these manifold duties it will not be possible for him to do much teaching; but the prospect of good work in behalf of higher life among the students opens before him a wide field of usefulness. Late in the summer Dr. R. R. Ramsey resigned as Instructor in Physics and was succeeded by Mr. Charles A. Proctor. As the work in this subject was still too heavy for two men, Mr. J. S. Summers has been added as Instructor. Dr. R. M. Ogden has been appointed Assistant in Experimental Psychology.

Mr. Paul Super has been appointed Secretary of the Young Men's Christian Association. He gives his entire time to the work, which is a step forward in the present session.

In the session of 1903-4 the University has taken a long stride forward in better care of its dormitories. Read Hall has been simply but beautifully furnished. Every room is taken and twice the number could be rented if we only had the rooms to rent. Miss Mary Elizabeth Lewis has been ap-

pointed Head of Read Hall and Adviser of Women. The Curators feel that they have been fortunate in their choice of a woman for this important position. Mr. George W. Henderson resigned during the summer as Steward of Benton Hall and Lathrop Hall, the two dormitories for men. His place has been well filled by Mrs. Julia A. Watkins. Never before in the history of the University have the club houses been maintained in a condition so satisfactory. Much yet remains to be done, but a long step forward has been taken in the right direction in the present session.

A number of Student Assistants, on salaries varying from \$40 to \$150, have been appointed because from lack of money it was not possible to get better help. These Student Assistants are working faithfully, but we regret that the University is not able in all cases to employ people of greater attainments and larger experience in teaching. However, the number of such Assistants is smaller now than it has been for a long time. Very few of the Student Assistants teach at all, and we hope next year to eliminate them altogether from the roll of teachers.

Dr. C. M. Jackson, Professor of Anatomy, was granted a furlough for one year to prosecute his studies in Europe. The work was placed in the hands of Mr. Peter Potter aided by Mr. E. T. Bell and a Student Assistant. During the summer of 1903 Mr. Potter was made Associate Professor of Anatomy in the Medical Department of St. Louis University and Mr. E. T. Bell was placed in charge of our work in Anatomy, assisted in the first semester by Mr. W. H. Goodson and Mr. O. R. Gullion, and in the second semester by Mr. C. O. Giese and Mr. Gullion. Professor J. C. Jones, Dean of the Academic Department and Professor of Latin, was granted a furlough for one year to prosecute his studies at the University of Munich, in Germany. His substitute is acting Assistant Professor E. H. Sturtevant. Mr. J. S. Ankeney, Instructor (in charge) in Freehand Drawing, was granted a furlough for one year to prosecute his studies in Paris. His substitute for the year is Miss Alexandra F. Blumberg. Mr. T. J. Rodhouse, Instructor (in charge) in Mechanical Drawing, was granted a furlough for one year to prosecute his studies at Cornell. His substitute is Mr. W. B. Rollins, who is assisted by Mr. E. F. Robinson. Professor H. J. Waters, Dean of the College of Agriculture and the Department of Engineering, and Director of the Experiment Station, was granted a furlough of one year that he might take charge of the exhibit in agriculture for the Missouri World's Fair Commission. As Dean and Director his substitute is Professor F. B. Mumford, and Mr. Mumford is aided in his work in Animal Husbandry by Assistant Professor E. B. Forbes. The appointment of Mr. Forbes is not for one year only although during the term of the furlough his salary is ultimately paid out of what was paid Mr. Waters.

This furlough the University granted with some reluctance but it seemed necessary to help the Missouri Commission in its great work. Permission has been granted to Dr. George E. Ladd, Director of the school of Mines, to take charge of the Mineral Exhibit for the Missouri World's Fair Commission, but of this I shall speak under the head of "Changes in the Faculty of the School of Mines."

At Rolla: Mr. Ira Welch McConnell is no longer in the service of the School of Mines as Professor of Civil Engineering. His place has been taken by Professor Elmo Golightly Harris, who has returned to the institution after serving some years in the University of Pennsylvania. Mr. Hermann Otto Schulze resigned his position in the summer of 1903 as Assistant Professor of Metallurgy. The work in the session of 1903-4 has been conducted by Dr. Heinrich O. Hofman, Special Lecturer in Metallurgy, with the aid of Mr. Elmer Cooper Heck, who has the title of Assistant. Mr. James Clark Draper, formerly Assistant in Assaying and Mineralogy, has been made Assistant Professor of Mining and Ore Dressing. Mr. Leon Stacy Griswold has been elected Instructor in Geology. Mr. Albert Dyke Wilson is no longer Instructor in Chemistry. Mr. Stanley Ralston Moore has been made Assistant in the Laboratory of Physics in the place of Mr. Cornelius Mark Daily. Mr. Charles Mahlon Hummel has been made Assistant in Surveying in the place of Mr. Royal Sylvester Webster. Mr. Frank William Harper has been made Assistant in the Chemical Laboratory in the place of Mr. Cyrus Edward Minor. Mr. Ralph Augustus Conrad, formerly Assistant in Crystallography is no longer in the service of the School of Mines. Mr. Joseph Jarvis Brown has been elected Assistant in Surveying in the place of Mr. Glenn Beckley Morgan. Mr. Cyrus Edward Minor, formerly Assistant in the Chemical Laboratory, has been elected Assistant in Surveying. Mrs. J. D. Carpenter has ceased to serve the School of Mines as Librarian. Her place has been filled by Mr. Leon Ellis Garrett, who has been made Librarian and has been promoted from Assistant in Mathematics to Instructor in the same subject. Mr. Herbert Arno Roesler has been elected Assistant in the Chemical Laboratory.

THE FACULTY.

In administering the affairs of the University one thing challenges the most serious consideration. Changes in the Faculty should never take place except for undoubtedly good reasons. Changes are often inevitable because of our inability to retain in the service of the University the best qualified teachers. Other more favored institutions, with ample resources at command, take from us our experienced, thoroughly trained men. The loss thus sustained in late years has been incalculable. The retention of

valuable men is all-important. Enlarged resources should be placed at the command of the Board, enabling us to compete with any institution in the country in securing and retaining the best talent for our University. This view has special reference to the salaries of head professors. A great State like Missouri can not afford to cripple the work of its University or lessen the opportunity of the youth of the commonwealth. Only by supplying in the Faculty teachers of the best ability can we attract the young men of Missouri to the University and prevent them from leaving home to find higher advantages.

The salaries paid in our University are low. The stronger Universities all pay larger salaries. If we are to retain our best Professors it is necessary that they should receive somewhat larger salaries. It is idle to say that good men are easy to get. Experience shows that it is very hard to get thoroughly good men. Every time that a good Professor leaves we incur an immense risk in getting a weaker man in his place. It is wise policy when we have secured a thoroughly good Professor to hold him if two or three hundred dollars more of salary will do it.

The Faculties at Columbia and at Rolla are more harmonious than they have ever been in the history of the University. Teachers and officers are working in sympathy for the advancement of the Institution.

THE STUDENTS.

Discipline. The discipline up to date in the session of 1903-4 has been remarkably good at Columbia, and at Rolla.

Intercollegiate Debates. Students of our University in recent years have engaged in a number of debates with students of other Colleges and Universities. We are proud to say that they have won in most of the debates in which they have engaged.

Paying One's Own Way. A number of students manage to pay their way at the University by their own exertions. Some of the most distinguished men of Missouri and of other states have done this in former years. The number of such students in the present session (1903-4) is large. The Y. M. C. A., a student organization, has a committee to canvass the town for work and to distribute it among students needing it. Too much praise can not be given to this body of Christian students and to the teachers and officers of the University for the encouragement that they have given to poor young men in supporting themselves.

Enrollment. The enrollment in the Departments at Columbia and also at Rolla has been very large in this session. It is confidently expected that the enrollment will continue to increase at a rapid rate, and that the Forty-third General Assembly will find in the Calendar year ending 1

June, 1905, at Columbia and Rolla combined, 2,000 students. In the session of 1902-3, the students at Columbia and Rolla came from fifty-six states, territories, and foreign countries. Among foreign countries, Canada, Germany, Japan, Cuba, Porto Rico, Mexico, and the Argentine Republic are represented by students. The Argentine Minister at Washington sent to this University students from that Republic, the sons of prominent persons. They came to study our Missouri system of Agriculture. Among the State Universities we are in enrollment about the seventh.

BUILDINGS AND EQUIPMENT.

All the buildings at Columbia and at Rolla, for which appropriations were granted by the Forty-first General Assembly, have been completed and are in daily use. Of the buildings granted by the Forty-second General Assembly, none have yet been erected or even begun because of the unexpected decrease in the collections under the Collateral Inheritance Tax.

Special appropriations granted for books and equipment, and for various other purposes, have been expended in part, and in my opinion they have been expended economically and judiciously.

THE UNIVERSITY AND THE PUBLIC SCHOOLS.

The Summer Schools. The Summer School at Columbia opens early in June and continues for several weeks. It is intended primarily for high school teachers. Courses in English, Latin, French, German, Greek, Free-hand Drawing, History, Biology, Physics, Chemistry, Shopwork and Drawing, Agriculture, Horticulture, Mathematics, and some other subjects are given. It is gratifying to know that many of the leading teachers of the State have been among its students.

In the summer of 1903 the University maintained a branch Summer School for seven weeks at St. Joseph, in northwest Missouri. There were enrolled 17 teachers. At the same time we maintained a Summer School at Houston, Missouri, for seven weeks, in which 60 teachers were enrolled. In the summer of 1903 a Summer School was maintained for seven weeks by the University at Joplin, in which 65 teachers were enrolled. The University receives every spring a large number of applications from various parts of Missouri to establish branch Summer Schools. The hundreds of teachers that we have taught in our Summer Schools are teaching with better instruction, because of their residence at the University, perhaps 50,000 children in the public schools of Missouri every winter; and this good work goes on so long as these teachers continue in their profession.

Growth of Accredited High Schools. The growth of our Accredited Schools has been remarkable. The number is now 113 and many more

are seeking places on our list. Eleven years ago there were not 6 secondary schools, public or private, in Missouri that could have met our present conditions for approval. Nine-tenths of those accredited are public high schools. With the growth of these schools in quality has come a corresponding growth in enrollment. Many of them have increased their enrollment a hundred per cent in the last six years. It is fair to assert that five times as many students are enrolled in our public high schools in 1903 as were enrolled in 1892; and furthermore the high schools in which they are enrolled in 1903 are far better than those of 1892. It should be remembered that this marvelous growth of high schools has been largely the work of the University, whose influence should not be measured by its own enrollment but by what it has done for the public high schools as well. Tens of thousands of students that do not come to the University are receiving a far better education than would have been possible to them had not the influence of the University reached their local high schools. Through the high schools to reach for good the district schools is another step forward.

State Aid to High Schools. It would be a Godsend to education in Missouri if in some way the State would give *stimulative aid* to high schools in counties that really need aid. If it be allowed us to make suggestions we would respectfully offer the following. It is a matter that deeply concerns the university:

(1) State aid should not be extended to a school district that is able to support a high school of its own—say to a district in which the assessed valuation of property is a million dollars or more.

(2) State aid should not be offered to a district in which the people are taxing themselves for school purposes less than seventy-five cents on the hundred dollars. To those who tax themselves in this sum the State might well offer \$300 or \$400, this minimum amount being increased where the rate of taxation is eighty cents on the hundred dollars, and again increased where it is eighty-five cents, and so on up to a dollar.

(3) To encourage three or more school districts to unite for the support of a common high school, as provided for in an existing statute, a fixed amount of State aid might be offered without reference to the assessed valuation of property. There would be no danger that rich districts might unite with poor districts and thus profit by State aid, for the loss to a rich district by uniting with two or three poor ones would be greater than the aid received. The State could well afford to put a premium upon such a union of rural districts for the maintenance of a common high school.

(4) It might well be specified that where State aid is extended to any high school the teaching shall gradually become industrial as well as

classical, literary, and scientific. Any high school profiting by State aid might well be required to give in time instruction in Agriculture, Horticulture, Entomology, Mechanic Arts, and Domestic Economy, as well as in the subjects usually taught in first-class high schools. The richer portions of Missouri can afford in their own interest to lift up education in the poorer sections. Few things would be more profitable to the University itself. Hence these suggestions.

STATE BUREAUS AND COMMISSIONS AT COLUMBIA.

Every department of the State Government which has for its object scientific, philanthropic, or statistical work, should have free of rent, offices and, if necessary, laboratories, in the buildings of the University at Columbia. They should have easy access to its libraries and laboratories. Their officers might occasionally lecture before our students. They should co-operate with the allied departments of the University and receive help from them.

The State Board of Health receives free quarters in the University and has access to our libraries and laboratories. It is an aid to us in our work and we can help the Board greatly.

In our Engineering building should be located any Bureau or Commission that may be established for Good Roads, or for State engineering work.

The State Board of Charities and Correction might well be quartered in our Academic Hall close to our departments of Political Economy and Sociology, which should receive aid from it and give aid to it in return.

The State Fish Commission should have at least a station at Columbia in connection with our department of Biology and our Experiment Station. We could render it valuable aid and receive some aid in return.

A Commission for Pure Food and Drugs should be established and should have its headquarters here.

The fact that Columbia is by railroad only thirty-five miles from Jefferson City renders this arrangement for the first time feasible. The lodging of such Bureaus and Commissions in our buildings would be a great inspiration to our students, who come from nearly every county in Missouri.

THE SCHOOL OF MINES AND METALLURGY. (at Rolla.)

This branch of the University has had a most successful year. It has a large enrollment and a better average grade of students than it has ever had in its history. The interest in it of the people and of the press of the

State is rapidly growing. Prospectors have sent to its Professors of Geology, during the past calendar year, many thousand specimens of minerals and ores for analysis and identification. That such a school is justified in a great mining State like Missouri has become apparent, and its friends are to be congratulated upon the fact that it is now becoming one of the leading institutions of its kind in America.

Very respectfully yours,

JOHN D. VINCIL,

President of the Board of Curators.

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OFFICERS OF INSTRUCTION AND ADMINISTRATION

Names are printed in the several groups in the order of appointment.

Those marked with a * are names of officers or members of the Faculty of the School of Mines and Metallurgy at Rolla, Missouri.

PRESIDENT OF THE UNIVERSITY

RICHARD HENRY JESSE, LL. D.,

President, and Professor of Ancient and Medieval History.

Student, University of Virginia, 1873-5, and part of 1878; Dean of the Academic Department, University of Louisiana, 1878-84; Professor of Latin, Tulane University, 1884-91; studied in Europe part of 1885 and of 1890; LL. D., Tulane University, 1891; President of the University of Missouri, 1891—.

PROFESSORS

PAUL SCHWEITZER, Ph. D., LL. D.,

Professor of Agricultural Chemistry, and Chemist to the Experiment Station.

Student under Schneider, Sonnenschein, and H. Rose, at Berlin, 1858-60; Chemist to the Soda Ash Works, Schoeningen, 1860-2; Chemist to the Chemical Works at Detmold, 1862-3; Assistant Professor of Chemistry, Polytechnic Institute, Philadelphia, 1864-6; Assistant in School of Mines, Columbia College, 1866-72; Ph. D., University of Goettingen, 1869; LL. D., University of Missouri, 1897; Professor in the University of Missouri, 1872—.

ANDREW WALKER McALESTER, A. B., M. D., LL. D.,

Professor of Surgery, Dean of the Medical Faculty, and Superintendent of the Parker Memorial Hospital.

A. B., University of Missouri, 1865, M. D., 1866, A. M., 1868; studied abroad, 1873 and 1885; Professor of Surgery, University of Missouri, 1873-80, LL. D., 1897; President State Board of Health, 1901—; Professor of Surgery and Dean of Medical Faculty, University of Missouri, 1880—.

WOODSON MOSS, M. D., LL. D.,

Professor of the Practice of Medicine and Therapeutics.

M. D., University of Missouri, 1874, Instructor in Medicine and Demonstrator of Anatomy, 1875-8, Professor of Anatomy and Demonstrator, 1878-83, Professor of Anatomy and Physiology, 1883-91; studied in Europe, 1890; Professor of Anatomy and the Practice of Medicine, University of Missouri, 1891-1900, LL. D., 1901, Professor of the Practice of Medicine and Therapeutics, 1900—.

EDWARD ARCHIBALD ALLEN, Litt. D.,

Professor of English Language and Literature.

Student, Randolph-Macon College, 1861-2; University of Virginia, 1866-8; Professor of Latin and Greek, Farmville College (Va.), 1873-81; Professor of English and Modern Languages, Central College, 1881-5; Litt. D., Washington and Lee University, 1890; Professor of English, University of Missouri, 1885—.

MILLARD LEWIS LIPSCOMB, A. M.,

Professor of Physics.

A. M., Bethany College (West Va.), 1874; Instructor, William and Mary College, 1874-5, Professor, 1875; Professor of Physical Science, South Kentucky College, 1879-89; Professor of Physics, University of Missouri, 1889—.

WILLIAM GWATHMEY MANLY, A. M.,

Professor of Greek Language and Literature.

Student, University of Virginia, 1882-4; Assistant Head Master, McCabe's University School, 1884-6; Professor of Greek, Mercer University, 1886-9; A. M., Harvard University, 1890; American School of Classical Studies at Athens, and traveling in Greece, 1900; Professor of Greek, University of Missouri, 1890—.

†JOHN CARLETON JONES, A. B., Ph. D.,

Professor of Latin Language and Literature.

A. B., Westminster College, 1879, A. M., 1882, Ph. D., 1891, Professor of Latin, 1880-2; Graduate Student, Johns Hopkins University, 1882-3; Assistant Professor of Latin and Greek, University of Missouri, 1883-7, Associate Professor of Latin, 1887-91; Student, University of Leip-

†Absent during session of 1903-4.

zig and at Rome, 1895-6; Student, University of Munich, 1903-4; Professor of Latin, University of Missouri, 1891—, Dean of Academic Faculty, 1900-3.

JOHN WALDO CONNAWAY, D. V. S., M. D.,

Professor of Veterinary and Comparative Medicine, and Veterinarian to the Experiment Station.

D. V. S., Chicago Veterinary College, 1890; M. D., University of Missouri, 1891; Student, Johns Hopkins University, 1894-5; Professor of Physiology, University of Missouri, 1891-7; Professor of Physiology and Veterinarian to the Experiment Station, 1897-1900; Professor of Comparative Medicine and Veterinarian to the Experiment Station, 1900—.

JOHN DAVIDSON LAWSON, B. C. L., LL. D.,

Professor of Contract and International Law, and Dean of the Law Faculty.

B. C. L., Trinity College, 1875; Editor *Central Law Journal*, 1876-81; Practiced Law 1876-85; Judge Civil Court, 1886-91; LL. D., University of Missouri, 1892, Professor of Law, 1891—, Dean of Law Faculty, 1903—.

JOHN PICKARD, A. B., Ph. D.,

Professor of Classical Archaeology and History of Art; Curator of the Museum of Classical Archaeology, and Dean of the Academic Faculty.

A. B., Dartmouth College, 1883, A. M., 1886; Student, University of Leipzig, 1889, University of Berlin, 1890, 1895, American School of Classical Studies in Athens, 1890-1, University of Munich, 1891-2; Ph. D., University of Munich, 1892; Student, American School of Classical Studies in Rome, 1901-2; Professor of Classical Archaeology, University of Missouri, 1892—; Dean of Academic Faculty, 1903-4.

†FRANK THILLY, A. B., Ph. D.,

Professor of Philosophy.

A. B., University of Cincinnati, 1887; Student, University of Berlin, 1887-9, University of Heidelberg, 1889-91; A. M., Ph. D., University of Heidelberg, 1891; Fellow in Philosophy, Cornell University, 1891-2, Instructor in Logic and the History of Philosophy, 1892-3; Professor of Philosophy, University of Missouri, 1893—.

†Resigned.

JOHN CHARLES WHITTEN, B. S., M. S., Ph. D.,

Professor of Horticulture, and Horticulturalist to the Experiment Station.

B. S., South Dakota Agricultural College, 1891, M. S., 1899; Instructor in Horticulture and Horticulturalist (in charge) to the Experiment Station, South Dakota Agricultural College, 1892; Student, Cornell University, 1892; Assistant in Horticulture, Missouri Botanical Garden, 1893-4; Ph. D., University of Halle-Wittenberg, 1903; Professor of Horticulture, and Horticulturalist to the Experiment Station, University of Missouri, 1894—.

†HENRY JACKSON WATERS, B. S. A.,

Dean of the College of Agriculture and Mechanic Arts, and Director of the Experiment Station.

B. S. A., University of Missouri, 1886; Assistant Secretary, Missouri State Board of Agriculture, 1886-8; Assistant in Agriculture to the Missouri Experiment Station, 1888-91; Professor of Agriculture, Pennsylvania State College and Agriculturalist to the Experiment Station, 1892-5; Director State Agricultural Exhibit, World's Fair, St. Louis, 1903-4; Dean of the College of Agriculture and Mechanic Arts, and Director of the Experiment Station, University of Missouri, 1895—.

BENJAMIN FRANKLIN HOFFMAN, B. L., M. L.,

Professor of Germanic Languages.

B. L., University of Missouri, 1884, M. L., 1888, Assistant Professor of Modern Languages, 1887-92; Student, Paris and Munich, 1892-3; Professor of Modern Languages, University of Louisiana, 1893-5; Student, University of Chicago, Summer Session, 1895-6; University of Leipsic, 1902-3; Professor of Germanic Languages, University of Missouri, 1895—.

FREDERICK BLACKMAR MUMFORD, B. S., M. S.,

Professor of Agriculture, Curator of the Agricultural Museum, Acting Dean of the College of Agriculture and Mechanic Arts, and Acting Director of the Experiment Station.

B. S., Michigan Agricultural College, 1891, M. S., 1893; Assistant in Michigan Agricultural Experiment Station, 1891-5; Assistant Professor of Agriculture, Michigan Agricultural College, 1893-5; Student, University of Leipzig, 1900, Zurich, 1901; Professor of Agriculture, University of Mis-

†On leave of absence.

souri, 1895—; Acting Dean of the College of Agriculture and Mechanic Arts, and Acting Director of the Experiment Station, University of Missouri, 1903-4—.

JOHN MOORE STEDMAN, B. Sc.,

Professor of Entomology, and Entomologist to the Experiment Station.

B. Sc., Cornell University, 1888; Instructor in Invertebrate Zoology, and Entomology, and Entomologist to the Experiment Station, 1888-90; Biologist to the United States Department of Agriculture, 1890-1; Professor of Biology, Trinity College, 1891-3; Professor of Biology, Alabama Polytechnic Institute, Agricultural and Mechanical College, and Biologist to the Experiment Station, 1893-5; Professor of Entomology, and Entomologist to the Experiment Station, University of Missouri, 1895—.

RAYMOND WEEKS, A. B., Ph. D.,

Professor of Romance Languages.

A. B., Harvard University, 1890, A. M., 1891; Instructor in French, University of Michigan, 1891-3; Traveling Fellow, Harvard University (Paris and Berlin), 1893-5; Ph. D., Harvard University, 1897; Professor of Romance Languages, University of Missouri, 1895—.

WILLIAM GEORGE BROWN, B. S., Ph. D.,

Professor of Chemistry.

Miller Scholar, University of Virginia, 1875, B. S., 1877; Professor of Chemistry, East Tennessee University, 1877-8; Professor of General and Agricultural Chemistry, University of Tennessee, 1878-80, Professor of Chemistry and Mineralogy, 1880-3; Student, University of Heidelberg, 1880-1; Instructor in Chemistry, University of Virginia, 1883-5; Morgan Fellow, Harvard University, 1884; Professor of Chemistry and Physics, South Carolina Military Academy, 1885-6; Professor of Chemistry, Washington and Lee University, 1886-94; Ph. D. (Hon.), University of North Carolina, 1889; Assistant Chemist, U. S. Department of Agriculture, 1894-6; Professor of Chemistry, University of Missouri, 1896—.

JOHN RUTLEDGE SCOTT, A. B., A. M.,

Professor of Elocution.

A. B., Ohio University, 1864, A. M., 1867; studied with James E. Murdoch, 1871; Instructor in Elocution, Washington University, 1877-88; Instructor in Vocal Culture, Johns Hopkins University, 1893-7; Professor of Elocution, University of Missouri, 1897—.

•GEORGE EDGAR LADD, A. B., Ph. D.,

Director of School of Mines and Metallurgy, and Professor of Geology and Mining.

A. B., Harvard University, 1887, A. M., 1888; Assistant United States Geological Survey, 1887-9; Assistant Geologist, Geological Survey of Texas, 1889; Chief Assistant Geological Survey of Missouri, 1889-91; Assistant in Geology, Harvard University, 1891-3, Instructor in Geology, Summer School, 1892-3, 1896-7, Ph. D., 1894; Student, German Universities, 1894-5; Chemist and Assistant Geologist, Geological Survey of Georgia, 1896-7; Director State Mineral Exhibit, World's Fair, St. Louis, 1904; Director and Professor of Geology and Mining, University of Missouri (School of Mines), 1897—.

•GEORGE REGINALD DEAN, B. S., C. E.,

Professor of Mathematics.

C. E., University of Missouri (School of Mines), 1890, B. S., 1891, Assistant in Mathematics, 1890-1; Professor of Mathematics, Maryville Seminary, 1891-2; Professor of Mathematics, Coe College (Ia.), 1892-3; Assistant in Leander McCormick Observatory, University of Virginia, 1893-4; Teacher of Mathematics, Central High School, Kansas City, Mo., 1894-7; Professor of Mathematics, University of Missouri (School of Mines), 1897—.

ISIDOR LOEB, B. S., LL. B., Ph. D.,

Professor of Political Science and Public Law.

B. S., University of Missouri, 1887, M. S., LL. B., 1893, Tutor in History, 1892-4; University Fellow in Jurisprudence, Columbia University, 1894-5; Assistant Professor of History, University of Missouri, 1895-9; Student, University of Berlin, 1899-1900; Professor of History, University of Missouri, 1899-1901; Ph. D., Columbia University, 1901; Professor of History and Administration, University of Missouri, 1901-2, Professor of Political Science and Public Law, 1902—.

CURTIS FLETCHER MARBUT, B. S., A. M.,

Professor of Geology and Mineralogy, and Curator of the Geological Museum.

B. S., University of Missouri, 1889; A. M., Harvard University, 1894; Instructor in Geology and Mineralogy, University of Missouri, 1895-7; Assistant Professor of Geology and Mineralogy, 1897-9; studied in Europe, 1899-1900; Professor of Geology and Mineralogy, University of Missouri, 1899—.

HOWARD BURTON SHAW, B. C. E., A. M.,

Professor of Electrical Engineering.

A. B., University of North Carolina, 1890, B. C. E., 1891, Instructor in Mathematics, 1889-90, Instructor in Mathematics, Surveying, and Drawing, 1891-3; in Engineering Work with Phoenix Iron Company, 1892; A. M., Harvard University, 1894; Assistant in Electrical Engineering Laboratory, Lawrence Scientific School, Harvard University, 1894-6; in Engineering Work with Consolidated Traction Company, 1896; Assistant Professor of Electrical Engineering, University of Missouri, 1896-9, Professor of Electrical Engineering, 1899—.

***AUSTIN LEE McRAE, B. S., S. D.,**

Professor of Physics.

B. S., University of Georgia, 1881; S. D., Harvard University, 1886; U. S. Signal Service (Electrical Work), 1882-9; U. S. Signal Service (Missouri State Weather Service), and Assistant Professor of Physics, University of Missouri, 1889-91; Professor of Physics, University of Missouri (School of Mines), 1891-4; Associate Professor of Physics, University of Texas, 1894-6; Consulting Engineer, St. Louis, 1896-9; Professor of Physics, University of Missouri (School of Mines), 1899—.

GEORGE LEFEVRE, A. B., Ph. D.,

Professor of Zoology and Curator of the Zoological Museum.

A. B., Johns Hopkins University, 1891, Fellow, 1894-5, Bruce Fellow, 1895-7, Ph. D., 1896, Assistant in Zoology and Embryology, 1897-8; Instructor in Zoology, Marine Biological Laboratory, Woods Hole, Mass., 1898-9; Professor of Zoology, University of Missouri, 1899—.

CHARLES A. ELLWOOD, Ph. B., Ph. D.,

Professor of Sociology.

Ph. B., Cornell University, 1896; Student, University of Chicago, 1896-7, University of Berlin, 1897-8; Fellow in Sociology, University of Chicago, 1898-9, Ph. D., 1899; General Secretary, Charity Organization Society, Lincoln Nebraska, 1899-1900; Instructor in Sociology, University of Nebraska, 1899-1900; Professor of Sociology, University of Missouri, 1900—.

CHARLES WILSON GREENE, A. M., Ph. D.,

Professor of Physiology and Pharmacology.

A. B., Leland Stanford Jr., University, 1892, A. M., 1893, Instructor in Physiology, 1893-6; Instructor in Zoology, Marine Biological Laboratory,

Woods Hole, Mass., 1896, 1897; Fellow in Physiology, Johns Hopkins University, 1897-8, Ph. D., 1898; Assistant Professor of Physiology, Leland Stanford Jr., University, 1898-1900; Professor of Physiology and Pharmacology, University of Missouri, 1900—.

MAX MEYER, Ph. D.,

Professor of Experimental Psychology.

Ph. D., University of Berlin, 1896; Research Work, Psychological Laboratory, University of Berlin, 1896-8; Research Work, Clark University, 1899-1900; Professor of Experimental Psychology, University of Missouri, 1900—.

CLARK WILSON HETHERINGTON, A. B.,

Professor of Physical Training, and Director of Gymnasiums and Athletics.

A. B., Leland Stanford Jr., University, 1895, Instructor, Encina Gymnasium, 1893-6; Anthropologist and Director of Physical Training, Whittier State School, 1896-8; Fellow in Psychology, Clark University, 1898-9; Fellow and Assistant in Psychology, 1899-1900; Professor of Physical Training and Director of Gymnasiums and Athletics, University of Missouri, 1900—.

FREDERICK PUTNAM SPALDING, C. E.,

Professor of Civil Engineering.

C. E., Lehigh University, 1880; Member of Engineer Corps, Southern Pacific Railway, 1880-2; Assistant Engineer, Mississippi River Improvements, 1882-6 and 1888-90; Instructor in Civil Engineering, Lehigh University, 1886-8; Engineer in Charge of Street Extensions, Washington, D. C., 1890-1; Assistant Professor of Civil Engineering, Cornell University, 1891-8; Contracting Engineer, Bethlehem, Pa., 1898-1900; Professor of Civil Engineering, University of Missouri, 1900—.

JESSE ELIPHALET POPE, B. S., M. S.,

Professor of Economics and Finance.

B. S., University of Minnesota, 1895, M. S. 1897; Superintendent, Monticello Schools, 1896-7; Instructor in History, University of Minnesota, 1897-8; Student, Columbia University, 1897-1900, Fellow in Economics, 1898-1900, Honorary Fellow, 1900; Professor of Economics and Finance, New York University, 1900-1; Professor of Economics and Finance University of Missouri, 1901—.

FREDERICK HANLEY SEARES, B. S.,

Professor of Astronomy, and Director of the Lows Observatory.

B. S., University of California, 1895, Fellow in Astronomy, 1895-6, Instructor in Astronomy, 1896-8, Graduate Student, 1898-9; Student, University of Berlin, 1899-1900, University of Paris, 1900-1; Professor of Astronomy, University of Missouri, 1901—.

•**VICTOR HUGO GOTTSCHALK, B. S., M. S.,**

Professor of Chemistry.

B. S., University of Missouri (School of Mines), 1898; Assistant U. S. Assayer, Kansas City, Mo., 1898-9; Assistant in Chemical Department, Marion-Sims Medical College, 1899; Assistant in Chemistry, University of Missouri (School of Mines), 1899-1900, Instructor in Chemistry, 1900-1, Acting Professor of Chemistry, 1901; Student, University of Chicago, 1901, Cornell University, 1901-2; Professor of Chemistry, University of Missouri (School of Mines), 1902—.

LUTHER MARION DEFOE, A. B.,

Professor of Mechanics in Engineering.

Fellow in Mathematics, University of Missouri, 1891-2; A. B., Harvard University, 1893; Acting Professor of Mathematics, University of Missouri, 1893-4, Assistant Professor of Mathematics, 1894-7, Acting Professor of Mathematics, 1897-8, Assistant Professor of Mathematics, 1898-1902, Student, University of Cambridge (Eng.), 1902-3; Professor of Mechanics, 1902—.

WILLIAM DIXON CHITTY, Captain 4th United States Cavalry,

*Professor of Military Science and Tactics, and Commandant of Cadets
(detailed by War Department.)*

BENJAMIN MINGE DUGGAR, M. S., A. M., Ph. D.,

Professor of Botany.

B. S., Agricultural and Mechanical College, Mississippi, 1891; M. S., Alabama Polytechnic Institute, 1892; A. B., Harvard University, 1894 (University Scholar), A. M., 1895 (Townsend Scholar); Botanical Assistant, Illinois State Lab. Nat. Hist., 1895-6; Instructor in Botany, Cornell University, 1896-9, Ph. D., 1898; Student, Universities of Leipzig and Halle, 1899-1900, Naples Biological Laboratory, 1900; Assistant Professor of Botany, Cornell University, 1900-1; Physiologist, Bureau Plant Industry, U. S. Department of Agriculture, 1901-2; Professor of Botany, University of Missouri, 1902—.

ARTHUR MAURICE GREENE, JR., B. S., M. E.,

Professor of Mechanical Engineering.

B. S., University of Pennsylvania, 1893, M. E., 1894; Instructor in Drawing, Graphics, and Kinematics, Drexel Institute, 1894-5; Instructor in Mechanical Engineering, University of Pennsylvania, 1895-1902; Mechanical Engineer, National Export Exposition, Philadelphia, 1899; in charge of Apprentices' School, Franklin Sugar Refinery, Philadelphia, 1893-5; In Engineers' Office, Union Traction Company, Philadelphia, summers of 1893, 1897 and 1898; Professor of Mechanical Engineering, University of Missouri, 1902—.

†CLARENCE MARTIN JACKSON, B. S., M. S., M. D.,

Professor of Anatomy and Histology.

B. S., University of Missouri, 1898, M. S., 1899, M. D., 1900, Fellow in Biology, 1897-9, Instructor in Anatomy, 1899-1900, Assistant Professor (in charge) of Anatomy and Histology, 1900-2; Student, University of Leipzig, 1903-4; Professor of Anatomy and Histology, 1902—.

***IRA WELCH McCONNELL, C. E.,**

Professor of Civil Engineering.

C. E., Cornell University, 1897; Engineering Work, 1897; U. S. Navy Yard, New York, 1898; Contractor, 1898; Instructor in Civil Engineering, Cornell University, 1898-1900; Instructor in Summer School of Surveying, Columbia University, 1899; Engineering Superintendent, 1900-2; Professor of Civil Engineering, University of Missouri (School of Mines), 1903—.

WALTER McNAB MILLER, B. Sc., M. D.,

Professor of Pathology and Bacteriology.

B. Sc., Ohio State University, 1885; Professor of Natural Science, University of Nevada, 1887-9; Professor of Anatomy, Physiology, and Geology, University of Nevada, 1889-99; M. D., Cooper Medical College, San Francisco, 1895; Bacteriologist and Pathologist, Nevada Agricultural Experiment Station, 1896-9; Student, Post-Graduate Medical Department, University of California, 1896, Johns Hopkins Medical School, 1899-1900, Harvard University Medical School, 1900, University of Leipzig, 1900-1, German University of Prague, 1901-2; Professor of Pathology and Bacteriology, University of Missouri, 1902—.

†Absent during session 1903-4.

MAX WASHINGTON MYER, A. B., M. D.,

Professor of Gynaecology and Obstetrics.

A. B., University of Missouri, 1897; M. D., Marion-Sims College of Medicine, 1899; Student, University of Strassburg, 1900, Berlin, 1901; Volunteer-Assistant in the Koenigliche Frauenklinik, Munich and Elizabeth Hospital (Gynaecologic pavilion), Vienna, 1901-2; Professor of Gynaecology and Obstetrics, University of Missouri, 1902—.

GUY L. NOYES, M. D.,

Professor of Diseases of the Eye and Ear.

M. D., University of Vermont, 1894; M. D., University of Michigan, 1901, Assistant in Ophthalmology, 1901, Demonstrator of Ophthalmic and Aural Surgery, 1902; Professor of Diseases of the Eye and Ear, University of Missouri, 1902—.

VASCO HAROLD ROBERTS, LL. D.,

Professor of Equity and Real Property.

Student in Germany, 1898-1901; LL. D., University of Heidelberg, Germany, 1901; Professor of Private Corporations, Real Property, etc., Drake University, 1901-3; Professor of Equity and Real Property, University of Missouri, 1903—.

EDWARD WILCOX HINTON, LL. B.,

Professor of Pleading and Practice.

LL. B., University of Missouri, 1890; LL. B., Columbia College, New York, 1891; 1891-1903, in the General Practice of Law; Professor of Law, University of Missouri, 1903—.

ALBERT ROSS HILL, A. B., Ph. D.,

Professor of Educational Psychology, and Dean of the Teachers College.

Munro Bursar, Dalhousie College, Halifax, N. S., 1888-1892, A. B., 1892; Scholar in Philosophy, Cornell University, 1892-3; Student at Heidelberg, Berlin, and Strassburg Universities, one semester at each, 1893-4; Fellow in Philosophy, Cornell University, 1894-5; Ph. D., Cornell University, 1895; Professor of Psychology and Education, State Normal School, Oshkosh, Wisconsin, 1895-7; Professor of Philosophy and Director of the Psychological Laboratories, University of Nebraska, 1897-1903; Professor of Educational Psychology, University of Missouri, 1903—.

EARLE RAYMOND HEDRICK, A. B., A. M., Ph. D.,

Professor of Mathematics.

A. B., University of Michigan, 1896; A. M., Harvard University, 1898; Student in Harvard University, 1897-1899 (in residence), and 1899-1901 (in absentia); Student at Goettingen, Germany, 1899-1901; Ph. D., Goettingen, 1901; Student at Ecole Normale Superieure, Paris, second semester, 1901; Instructor in Mathematics, Sheffield Scientific School, Yale University, 1901-1903; Professor of Mathematics, University of Missouri, 1903—.

***ELMO GOLIGHTLY HARRIS, C. E.,**

Professor of Civil Engineering.

C. E., University of Virginia, 1882; Practical Civil Engineer, 1882-91; Director of School of Mines, 1891-2; Professor of Civil Engineering School of Mines, 1891-1901; Associate Professor of Civil Engineering, University of Pennsylvania, 1901-3; Professor of Civil Engineering, School of Mines, 1903—.

ASSISTANT PROFESSORS

HENRY CAPLES PENN, A. B., A. M.,

Assistant Professor of English Language and Literature.

A. B., Central College, 1885; Instructor in Latin, Greek, and English, Hendrix College (Arkansas), 1885-7; Townsend Scholar, Harvard University, 1892-4, A. M., 1893; Student, Berlin University, 1902-3; Assistant Professor of English, University of Missouri, 1887—.

SIDNEY CALVERT, B. Sc., A. M.,

Assistant Professor of Chemistry.

B. Sc., McGill University, 1890; Graduate Student, Harvard University, 1890-4, A. M., 1892, Assistant in Chemistry, 1892-4, Private Research Assistant, 1892-4; Assistant in Chemistry, Harvard Summer School, 1894; Student, University of Freiburg, 1901-2; Assistant Professor of Chemistry, University of Missouri, 1894—.

HENRY MARVIN BELDEN, A. B., Ph. D.,

Assistant Professor of English Language and Literature.

A. B., Trinity College, 1888; Instructor in English, Lehigh University, 1890-1, University of Nebraska, 1893-4; Student, University of Strassburg, 1894-5; Ph. D., Johns Hopkins University, 1895; Assistant Professor of English Language and Literature, University of Missouri, 1895—.

EVA JOHNSTON, A. M.,

Assistant Professor of Latin.

Fellow in Latin, University of Missouri, 1894-6, A. M., 1895; Instructor in Latin and Greek, Columbia (Mo.) High School, 1896-9; Student, Universities of Berlin and Heidelberg, 1899-1901; Assistant Professor of Latin, University of Missouri, 1899—.

HERMANN BENJAMIN ALMSTEDT, B. L., Ph. D.,

Assistant Professor of Germanic Languages.

B. L., B. P., University of Missouri, 1895; Reader in German, University of Chicago, 1895-8, Assistant, 1898-1900, Ph. D., 1900, Associate, 1900-1, Dean in University College (College for Teachers), 1900-1; Studied in Germany, 1897; Assistant Professor of Germanic Languages, University of Missouri (in charge, 1902-3), 1901—.

OSCAR MILTON STEWART, Ph. B., Ph. D.,

Assistant Professor (in charge) of Physics.

Ph. B., De Pauw University, 1892; Ph. D., Cornell University, 1897; Professor of Physics and Chemistry, Baker University, 1892-4; Fellow, Cornell University, 1895-6, Assistant in Physics, 1896-8, Instructor in Physics, 1898-1901; Assistant Professor of Physics, University of Missouri, 1901—.

CLARENCE HENRY ECKLES, B. Agr., M. Sc.,

Assistant Professor (in charge) of Dairy Husbandry.

B. Agr., Iowa Agricultural College, 1895, M. Sc., 1897; Student, University of Wisconsin, 1896; Instructor in Dairying, Iowa Agricultural College, and Dairy Bacteriologist to the Iowa Experiment Station, 1896-1901; Instructor in Dairy Husbandry, Massachusetts Agricultural College, Short Course of 1898-9; Assistant Professor (in charge) of Dairy Husbandry, University of Missouri, 1901—.

NORMAN MACLAREN TRENHOLME, A. M., Ph. D.,

Assistant Professor (in charge) of History.

A. B., McGill University, 1895, Graduate Student, 1895-6; Graduate Scholar in History, Harvard University, 1896-8, A. M., 1897, Assistant in History, 1898-9, Ph. D., 1899, Non-resident Graduate Student and Harris Fellow in History, studying in Europe, 1899-1900; Professor of History and English Literature, Western University (Can.), 1900-1; Instructor in History and Political Science, Pennsylvania State College, 1901-2; Assistant Professor (in charge) of History, University of Missouri, 1902—.

WALTER SCOTT WILLIAMS, C. E.,

Assistant Professor of Civil Engineering.

C. E., University of Missouri, 1885; Subdivision Engineer on Construction, Missouri Pacific Railway, 1886; Assistant Engineer on Location and Construction, K. C., F. S. & M. R. R., 1887-90; Chief Engineer on Location and Construction, Hearne & Brazos Valley R. R., 1891-2; Assistant Engineer with Mississippi River Commission, 1893-1901; Assistant Engineer in charge of Precise Levels, U. S. Lake Survey, 1901; Instructor in Civil Engineering, University of Missouri, 1901-3; Assistant Professor of Civil Engineering, University of Missouri, 1903—.

ABRAHAM LINCOLN HYDE, Ph. B.,

Assistant Professor of Civil Engineering.

Ph. B., Yale University, 1886; Assistant Engineer, Berlin Iron Bridge Company, 1886-1891; Assistant Engineer, The King Bridge Company, 1891-92; Principal Assistant Engineer, The King Bridge Company, 1892-94; Principal Assistant Engineer, Frank C. Osborn, 1894; Junior Partner, The Osborn Company, Civil Engineers, 1894-96; Consulting Engineer, Cleveland, Ohio, 1896-1901; Official Photographer, American Bridge Company, 1901; Instructor in Civil Engineering, Lehigh University, 1902-3; Assistant Professor of Civil Engineering, University of Missouri, 1903—.

EDGAR HOWARD STURTEVANT, Ph. D.,

Acting Assistant Professor (in charge) of Latin.

A. B., Indiana University, 1898; Ph. D., University of Chicago, 1901; Tutor in Latin, Indiana University, 1895-8; Fellow in Sanskrit and Indo-European Comparative Philology, University of Chicago, 1898-1901; Instructor in Latin, Indiana University, 1901-2; Acting Professor of Greek, Maryville College, 1902-3; Acting Assistant Professor (in charge) of Latin, University of Missouri, 1903—.

ERNEST BROWNING FORBES, B. S.,

Assistant Professor of Animal Husbandry.

B. S. (Zoology), University of Illinois, 1897; Zoological Assistant, Illinois Biological Station, 1894-6; Assistant to the State Entomologist of Minnesota, 1897-8; Zoological Assistant, Illinois State Laboratory of Natural History, 1898; Acting State Entomologist of Minnesota, 1901; Assistant in Animal Husbandry, Illinois Experiment Station, 1901-2; B. S. (Agr.), University of Illinois, 1902; Instructor in Animal Husbandry, University of Illinois, 1902-3; Assistant Professor of Animal Husbandry, University of Missouri, 1903—.

WILLIAM JEPHTHA CALVERT, A. B., M. D.,

Assistant Professor of Internal Medicine.

A. B., University of Kentucky, 1893; M. D., The Johns Hopkins Medical School, 1898; 1st Lieutenant and Assistant Surgeon, U. S. Army, 1899-1902; in charge the Laboratory of Board of Health, Manila, P. I., 1900-1901; Lecturer on "Tropical Diseases," Washington University, St. Louis, 1902-1903; Assistant Professor of Internal Medicine, University of Missouri, 1903—.

•**JAMES CLARK DRAPER, B. S., E. M.,**

Assistant Professor of Mining Engineering.

B. S., School of Mines and Metallurgy, University of Missouri, 1901; E. M., 1903; Instructor in Shopwork and Drawing, 1901-2; Instructor in Mineralogy and Assaying, 1902-3; Assistant Professor of Mining Engineering, 1903—.

WILLIAM BAIRD ELKIN, A. B., Ph. D.,

Acting Assistant Professor of Theory and Practice of Teaching.

A. B., Manitoba University, 1889; Fellow in Philosophy, Cornell University, 1890-1; Acting Professor of Philosophy, Indiana University, 1891-2; Student, Cornell University, 1892-4; Ph. D., Cornell University, 1894; Acting Professor of Philosophy, Colgate University, 1894-5; Student, German Universities, 1895-6; Lecturer on Theory and Practice of Teaching, Teachers' College, Columbia University, 1897-9; Acting Professor of Psychology, Logic, and Pedagogics, Hamilton College, 1899-1901; Teacher of Economics, History, and Political Science, Kamehameha Schools, Honolulu, 1901-3; Acting Assistant Professor of Theory and Practice of Teaching, University of Missouri, 1903—.

WALDEMAR KOCH, B. S., Ph. D.,

Assistant Professor of Physiological Chemistry and Pharmacology.

B. S., Lawrence Scientific School, 1898; Ph. D., Harvard University, 1900; Assistant in Physiology, Harvard Medical School, 1900-1; Assistant in Pharmacology, University of Chicago, 1901-3; Assistant Professor of Physiological Chemistry and Pharmacology, University of Missouri, 1903—.

INSTRUCTORS

•PAUL JULIUS WILKINS, B. S.,

Instructor in Modern Languages.

B. S., Michigan Agricultural and Mechanical College, 1869; Instructor in University of Missouri (School of Mines), 1887—.

RICHARD B. MOORE, B. S.,

Instructor in Chemistry.

University College, London, 1886-90; Instructor in Chemistry, Oswestry High School (England), 1890-1; Instructor in Chemistry, Birkbeck Technical College, London, 1891-3; British Museum, 1893-5; B. S., University of Chicago, 1896, Laboratory Demonstrator, 1896; Instructor in Chemistry, University of Missouri, 1897—.

•JOHN BENNETT SCOTT,

Instructor in English.

†THOMAS JACKSON RODHOUSE, B. S.,

Instructor in Drawing.

B. S. in Civil Engineering, University of Missouri, 1897; Fellow, Cornell University, 1903-4; Instructor in Drawing, University of Missouri, 1897—.

WINTERTON CONWAY CURTIS, A. B., A. M., Ph. D.,

Instructor in Zoology.

A. B., Williams College, 1897, A. M., 1898, Assistant in Biology, 1897-8; Assistant in Biology, Johns Hopkins University, 1899-1900, Fellow, 1900-1, Ph. D., 1901; Instructor in Marine Biological Laboratory, Woods Hole, Mass., 1898—; Instructor in Zoology, University of Missouri, 1901—.

†JOHN SITES ANKENY, JR.,

Instructor in Freehand Drawing.

Student, Art Students' League, New York, 1889, 1892, Academic Julian (Atelier Lefebvre) and Ecole des Beaux Arts, Paris, 1893, 1894, Atelier Aman-Jean, 1895; in galleries of Italy and Holland, summer of 1895, and in Landscape Painting in France, summers of 1893 and 1894; Supervisor of Drawing, Carthage (Mo.) Schools, 1896-8, Kansas City Schools, 1899-1901; Student, Harvard University, 1901; Student, Paris, 1903-4; Instructor in Freehand Drawing, University of Missouri, 1901—.

†Absent during session of 1903-4.

***JOSEPH HENRY BOWEN,**

Instructor in Shopwork and Drawing.

Student, Miller School (Va.), 1890-5; Rhode Island School of Design, 1896-7; Instructor in Shopwork and Drawing, University of Missouri (School of Mines), 1902—.

WILLIAM HUTCHINSON COOK,

Instructor in Manual Training and Shopwork.

Teacher, Public Schools, Michigan, 1887-9, 1892-4; Student, State Normal School, Michigan, 1889-90; Mechanic, Superintendent, etc., in various factories and machine-works, 1894-1901; Student, Teachers' College, Columbia University, 1901-2; Instructor in Manual Training and Shopwork, University of Missouri, 1902—.

MARY IDA MANN,

Instructor in Physical Training.

Graduate, Michigan State Normal College, 1898; Graduate, Chautauqua School of Physical Education, 1899; Assistant, Woman's Gymnasium, Michigan State Normal School, 1898-1901; Graduate, New Haven Normal School of Gymnastics, 1902; Instructor in Physical Training, University of Missouri, 1902—.

HERMAN SCHLUNDT, B. S., M. S., Ph. D.,

Instructor in Physical Chemistry.

B. S., University of Wisconsin, 1894, Assistant in Chemistry, 1894-6, M. S., 1896; Instructor in Physics and Chemistry, West Division High School, Milwaukee, Wis., 1896-9; Student, University of Leipzig, 1899-1900; Fellow in Chemistry, University of Wisconsin, 1900-1, Ph. D., 1901, Instructor in Chemistry, 1901-2; Instructor in Physical Chemistry, University of Missouri, 1902—.

CAROLINE TAYLOR STEWART, A. M., Ph. D.,

Instructor in Germanic Languages.

A. B., Kansas University; A. M., University of Michigan, 1895; Student, Bryn Mawr College, 1895-6, Fellow in Germanics, 1897; National Association Collegiate Alumnae Fellow, 1898; Woman's Educational Association Fellow, 1899; Ph. D., University of Berlin, 1901; Instructor in Germanic Languages, University of Missouri, 1902—.

*ROBERT CLAIR THOMPSON, B. S.,

Instructor in Chemistry.

Graduate of Clarion (Pa.) State Normal School, 1896; B. S., Westminster College, Pa., 1901; Student, University of Missouri, 1901; Teacher of Chemistry and Biology, High School, Mexico, Mo., 1902; Instructor in Chemistry, University of Missouri (School of Mines), 1902—.

†GEORGE MASON TUCKER, B. S., Ph. D.,

Instructor in Agriculture.

B. S., Rhode Island College of Agriculture and Mechanic Arts, 1894; Assistant Agriculturalist, Rhode Island Agricultural Experiment Station, 1894-7; Ph. D., University of Goettingen, 1899; Manager of Plantation, Oaxaca Coffee Co., Mexico, 1900-2; Instructor in Agriculture, University of Missouri, 1902—.

FLOYD WILKINS TUTTLE, A. B.,

Instructor in Physical Training.

Student Assistant in Gymnasium, University of Missouri, 1900-2, A. B., 1902; Graduate Chautauqua School of Physical Education, 1902; Instructor in Physical Training, University of Missouri, 1902—.

JONAS VILES, A. M., Ph. D.,

Instructor in History.

A. B., Harvard University, 1896, A. M., 1897; Teacher in Dalzell's School for Boys, Worcester, 1896-8; Ph. D., Harvard University, 1901; Studied in London, 1901-2; Instructor in History, University of Missouri, 1902—.

WILLIAM LINN WESTERMANN, A. B., Ph. D.,

Instructor in Greek Language and Literature.

A. B., University of Nebraska, 1894, A. M., 1896, Student Assistant in Latin, 1894-6; Teacher of Latin and Greek, High School, Decatur, Ill., 1896-9; Student, University of Berlin, 1899-1902, Heidelberg, 1902; Ph. D., University of Berlin, 1902; Instructor in Greek, University of Missouri, 1902—.

†Resigned.

GRACE SARA WILLIAMS, A. B.,

Instructor in Romance Languages.

A. B., Knox College, 1897; Student, Columbia University, 1898-9; Sorbonne College de France, Ecole des Chartes, Ecole Pratique des Hautes Etudes, 1899-1900; Instituti di Studi Superiori, Florence (winter semester), 1900-1; Rome, Madrid, 1901; Holder of the European Fellowship of the Women's Educational Association of Boston, 1900-1; Eleve Titulaire de l'Ecole Pratique des Hautes Etudes (Section des Sciences Historiques et Philologiques), Paris, 1901; Instructor in Romance Languages, University of Missouri, 1902—.

ARTHUR C. DUNCAN,

Instructor in Shopwork.

Graduate of Williamson Mechanical Trade School, 1900; Machinist and Draughtsman, 1900-3; Instructor in Shopwork, University of Missouri, 1903—.

ROBERT MONTGOMERY BIRD, A. B., B. S., Ph. D.,

Instructor in Agricultural Chemistry.

A. B., B. S., Hampden-Sidney College, 1897; Professor of Mathematics and Natural Science, Frederick College, Md., 1898-9; Lecture Assistant, Johns Hopkins University, 1900-1, Ph. D., 1901; Acting Professor of Chemistry, Mississippi Agricultural and Mechanical College, 1901-2; Acting Professor of Agricultural Chemistry and Chemist to the Experiment Station, University of Missouri, 1902-3; Instructor in Agricultural Chemistry, University of Missouri, 1903—.

JACOB H. WALLACE, B. S. in M. E.,

Instructor in Mechanical Engineering.

B. S. in M. E., University of Illinois, 1903; Instructor in Mechanical Engineering, University of Missouri, 1903—.

WILLIAM BENJAMIN ROLLINS, B. S.,

Acting Instructor in Drawing.

B. S. in Mechanical Engineering, University of Missouri, 1903; Instructor in Drawing, University of Missouri, 1903—.

WALTER LAFEYETTE HOWARD, B. S.,

Instructor in Horticulture.

B. Agr., B. S., University of Missouri, 1901, Assistant in Horticulture and Assistant Horticulturalist to the Experiment Station, 1902-3, Instructor in Horticulture, University of Missouri, 1903—.

HOWARD SPRAGUE REED, A. B.,

Instructor in Botany.

A. B., University of Michigan, 1903, Assistant in Botany, University of Michigan, 1899-1903; Assistant in Marine Biological Laboratory, 1902; Instructor in Botany, University of Missouri, 1903—.

ROBERT JULIAN FOSTER, D. V. M.,

Instructor in Veterinary Science.

D. V. M., Cornell University, 1902; Assistant in Jersey City Veterinary Hospital, summer of 1901, and House Surgeon during the summer of 1902; Assistant State Veterinarian of South Carolina, and Instructor in Veterinary Science, Clemson College, 1902-3; Instructor in Veterinary Science, University of Missouri, 1903—.

ELEXIOUS THOMPSON BELL, B. S., M. D.,

Instructor (in charge) in Anatomy.

B. S., University of Missouri, 1901, M. D., 1903; Fellow in Anatomy, 1901-2; Assistant in Anatomy, 1902-3; Instructor (in charge) in Anatomy, 1903—.

ERNEST FRANKLIN ROBINSON, B. S.,

Instructor in Mechanical Drawing.

B. S. (in C. E.), University of Missouri, 1903; Instructor in Mechanical Drawing, University of Missouri, 1903—.

CHARLES ALBERT PROCTOR, A. B.,

Instructor in Physics.

A. B., Dartmouth College, 1900; Assistant in Physics, Dartmouth, 1900-1; Non-resident Fellow of Dartmouth, studying at University of Chicago, 1901-2; Fellow and Assistant in Physics, University of Chicago, 1902-3; Instructor in Physics, University of Missouri, 1903—.

ELLEN DOUGLAS,

Acting Instructor in Romance Languages.

Student at the Universities of Paris and Heidelberg, 1897-8; at same Institutions, 1899-1900; Acting Instructor in Romance Languages, University of Missouri, 1903—.

JOSEPH S. SUMMERS, A. B., A. M.,

Instructor in Physics.

A. B., William Jewell College, 1900; A. M., University of Missouri, 1901; Laboratory Assistant in Physics, William Jewell College, 1899-1900; Assistant in Physics, Summer Session, University of Missouri, 1901-2; Fellow, University of Missouri, 1901-2; Principal Trenton High School, 1902-3; Instructor in Physics, University of Missouri, 1903—.

LLOYD CARLTON NICHOLSON, A. B., A. M., B. S. in E. E.,

Instructor in Electrical Engineering.

A. B., Trinity College, 1899, A. M., 1900; B. S. in E. E., University of Missouri, 1902; Adjunct Professor of Mathematics, Trinity College, 1902-1903; Instructor in Electrical Engineering, University of Missouri, 1903—.

*LEON ELLIS GARRETT, B. S.,

Instructor in Mathematics and Librarian.

B. S., School of Mines, 1901; Assistant in Mathematics, 1901-3; Instructor in Mathematics and Librarian, School of Mines, 1903—.

*LEON STACY GRISWOLD, A. B.,

Instructor in Geology.

A. B., Harvard University, 1889; Assistant Arkansas Geological Survey, 1889-91; Assistant U. S. Geological Survey, 1893-4; Instructor in Geology, Harvard University, 1893-6; Engaged in Mining in Montana, 1896-1903; Instructor in Geology, School of Mines, 1903—.

LEWIS DARWIN AMES, B. L., A. B., A. M.,

Instructor in Mathematics.

Instructor in Mathematics, Chillicothe Normal School, 1890-1900; Student, University of Chicago, Summers of 1897, 1898; B. L., University of Missouri, 1899; A. B., Harvard University, 1901; A. M., 1902; Graduate Scholar in Mathematics, 1902-3; Instructor in Mathematics, Harvard University, 1901-2; Instructor in Mathematics, University of Missouri, 1903—.

ALEXANDRA F. BLUMBERG,

Acting Instructor (in charge) in Freehand Drawing.

Certified Art Teacher from the "Kaiserliche Koenigliche Kunst-Akademie, Dusseldorf," with special mention for design; 1892-1895, student at Akademie Julian, Paris, also pupil of Gustave Courtois, C. L. Garrido, Raphiel Collin, Jacques Blanche, Prinnet, and Walter Sickert; Studied in Galleries of Belgium, Holland, Germany, Italy, and St. Petersburg, 1896-1901; Exhibitor at Exposition des Artistes Francais, Salon de Champs Elysees, Paris, 1895; at Exposition de la Societe des Beaux-Arts (Salon du Champs de Mars, Paris), 1902; Grande Exposition de Lyon (on special invitation), 1903; also exhibitor at various galleries in England, Germany, and Holland; Acting Instructor (in charge) in Freehand Drawing, University of Missouri, 1903-4.

ASSISTANTS

•**GEORGE WALTER HARRIS,**

Assistant in Chemical Laboratory.

•**CYRUS EDWARD MINOR,**

Assistant in Surveying.

ERNEST HOWARD FAVOR, A. B.,

Assistant Horticulturalist to the Experiment Station.

A. B., University of Missouri, 1902; Assistant in Botany, 1902-3; Assistant Horticulturalist to the Experiment Station, 1903—.

MILTON ROBARDS CONLEY, A. M., LL. M.,

Assistant in Law.

A. B., B. L., University of Missouri, 1892; A. M., 1893; LL. B., 1898; LL. M., 1899; Assistant in Law, 1903—.

HARVEY DENNIE MURRY, LL. B., LL. M.,

Assistant in Law.

LL. B., University of Missouri, 1897; LL. M., 1898; Assistant in Law, 1903—.

CARL CONRAD ECKHARDT, B. Ph.,

Assistant in History.

B. Ph., Ohio State University, 1902; Assistant in History, University of Michigan, 1902-3; Assistant in History, University of Missouri, 1903—.

LOUIS INGOLD, A. B., A. M.,

Assistant in Mathematics.

Student Assistant in Mathematics, University of Missouri, 1900-1; A. B., 1901; Teaching Fellow in Mathematics, 1901-2; A. M., 1902; Student, University of Chicago, 1902; Acting Assistant Professor of Mathematics, University of Missouri, 1902-3; Assistant in Mathematics, 1903—.

GEORGE I. REEVES, A. B.,

Assistant in Entomology.

A. B., University of Illinois, 1902; Fellow in Entomology, 1902-3; Assistant in Entomology, University of Missouri, 1903—.

LEONIDAS RUTLEDGE WHIPPLE,

Assistant in English.

Alumni Scholar at the University of Virginia, 1900-2; Assistant in English, University of Missouri, 1903—.

ROBERT MORRIS OGDEN, B. S., Ph. D.,

Assistant in Psychology.

B. S., Cornell University, 1901; Ph. D., University of Wuerzburg, 1903; Assistant in Psychology, University of Missouri, 1903—.

CHARLES BROOKS, A. B.,

Assistant in Botany.

Principal, High School, Odon, Indiana, 1899-1900; Principal, High School, Flora, Indiana, 1900-2; Fellow in Botany, Indiana Biological Station, Summer 1903; A. B., University of Indiana, 1903; Assistant in Botany, University of Missouri, 1903—.

FRANCES BELL HATCHER, A. B., A. M.,

Assistant in Mathematics.

A. B., University of Missouri, 1901; A. M., 1902; A. B., Radcliffe College, 1903; Student, University of Chicago, 1897-9; Teacher of Mathematics, Stephens College, 1899-1900; Fellow in Mathematics, University of Missouri, 1901-2; Assistant in Mathematics, Summer School, University of Missouri, 1901, 1902; Assistant in Mathematics, University of Missouri, 1903—.

ALBERT CARLTON LYON, B. S.,

Assistant in Chemistry.

B. S., Rose Polytechnic Institute, 1901; Chemist, Carnegie Steel Works, 1901; Assistant Manager and Chemist, The Cheapas Mining Co., 1901-3; Assistant in Chemistry, University of Missouri, 1903—.

ALLAN SAMUEL NEILSON, B. L.,

Assistant in English.

B. L., University of Wisconsin, 1901; Newspaper Writer and Student, University of Nebraska, 1902-3; Assistant in English, University of Missouri, 1903—.

CARL MILLER SNEED, M. D.,

Assistant in Bacteriology.

M. D., University of Missouri, 1901; Student Assistant in Pathology and Bacteriology, 1900-1; Assistant in Bacteriology and Pathology, 1901-2; Student in Northwestern University, Medical School, Summer 1902; Assistant in Bacteriology, University of Missouri, 1903—.

STUDENT ASSISTANTS

GOLDY MITCHELL HAMILTON, A. B.,

Student Assistant in English.

CAROLINE MCGILL, A. B.,

Student Assistant in Zoology.

JEPHTHA RIGGS, A. B.,

Student Assistant in English.

SOPHIE BODENHEIMER,

Student Assistant in Women's Gymnasium.

EUGENE PARK COWGILL,

Student Assistant in Physiology.

CHARLES CLIFFORD DuBOIS, A. B., A. M.,

Student Assistant in Anatomy.

WILLIAM HAMMACK GOODSON, A. B.,

Student Assistant in Anatomy.

OMAR RAY GULLION, A. B., A. M.,

Student Assistant in Anatomy.

FRANK WRIGHT LIEPSNER,

Student Assistant in Chemistry.

WILLIAM HENRY ZEIGEL, A. B.,

Student Assistant in Mathematics.

•FRANK WILLIAM HARPER,

Student Assistant in Chemical Laboratory.

•ELMER COOPER HECK,

Student Assistant in Metallurgy.

•JOSEPH JARVIS BROWN, JR.,

Student Assistant in Surveying.

•CHARLES MAHLON HUMMEL, B. S.,

Student Assistant in Surveying.

•STANLEY RALSTON MOORE,

Student Assistant in Physical Laboratory.

•HERBERT AMO ROESLER, B. S.,

Student Assistant in Chemical Laboratory.

CHARLES OSCAR GIESE, B. Ph.,

Student Assistant in Anatomy.

DORTHEA MOXNESS,

Student Assistant in Chemistry.

HERBERT SPENCER WOODS,

Student Assistant in Chemistry.

FRED GEORGE BAENDER,

Student Assistant in Shopwork.

CLARENCE CLINTON CROUCH,

Student Assistant in Zoology.

ALBERT WILLIAM SPAHT,

Student Assistant in Shopwork.

WILLIAM NEAL WINTER,

Student Assistant in Mechanical Drawing.

EUGENIA METZER, M. D., L. M.,

Student Assistant in Physiology.

EDGAR STAPLES MAUPIN,

Student Assistant in Surveying.

WALER JAMES SPALDING,

Student Assistant in Surveying.

OTHER OFFICERS

JAMES THAYER GEROULD, A. B.,

Librarian.

A. B., Dartmouth College, 1895; Graduate Student, Dartmouth College, 1895-6; Assistant Librarian, General Theological Seminary, 1896-7; Assistant, Columbia University Library, 1897-1900; Librarian, University of Missouri, 1900—.

WALTER KING STONE, A. B.,

Assistant Librarian.

A. B., Christian Brothers College (St. Louis), 1877.

DUNCAN BURNET,

Head Cataloguer.

***L. E. GARRETT, B. S.,**

Librarian.

CLARENCE ALLEN GOOD, M. D.,

House Surgeon, Parker Memorial Hospital.

M. D., University of Michigan, 1898; Assistant Physician and Pathologist, Northern Michigan Asylum, 1899-1900; Assistant in Pharmacology, University of Michigan, 1901; Resident Surgeon, Parker Memorial Hospital, 1902—.

SOPHIE EVANS,

Superintendent of Nurses.

THORNTON E. MOORE, M. D.,

First Intern, Parker Memorial Hospital.

M. D., University of Missouri, 1903.

J. G. BABB, A. M., LL. B.,

Secretary of the University.

A. B., University of Missouri, 1877, LL. B., University of Missouri, 1881, A. M., University of Missouri, 1890; Secretary of the University, 1889—.

R. B. PRICE, M. S.,

Treasurer.

IRVIN SWITZLER,

Registrar and Secretary of the Council and Various Faculties.

*CHARLES L. WOODS,

Secretary of the Executive Committee.

*HENRY WOOD,

Treasurer.

NOAH M. GIVAN,

Attorney for the Collection of the Collateral Inheritance Tax.

A. B., Indiana University, 1862; A. M., 1865; Superintendent Lawrence Indiana Graded Schools, 1862-3; Judge 7th Judicial District (Mo.), 1877-1886; Attorney for the Collateral Inheritance Tax, 1901—.

ETHYL M. FINE,

Assistant Secretary of the University.

MARY ELIZABETH LEWIS, B. S.,

Adviser of Women and Head of Read Hall.

B. S., Wellesley College, 1891; Professor of English, Coates College, 1892-5; Graduate Student, University of Chicago, 1895-6; Dean of Women and Instructor in English and History, University of South Dakota, 1896-7; Dean of Women and Professor of English, 1897-9; Graduate Student, University of Chicago, 1899-1900; Dean of Women and Professor of English, Oahu College, Honolulu, T. H., 1901-2; Adviser of Women, University of Missouri, 1903—.

M. L. LIPSCOMB, A. M.,

Editor of the University Catalogue, Superintendent of Buildings and Grounds.

GEORGE E. KESSLER,

Supervising Landscape Architect.

Chief Architect, Worlds' Fair, St. Louis.

FRED KELSEY,

University Publisher.

CHARLES B. DAVIS, A. B.,

Graduate Manager of Athletics.

A. B., University of Missouri, 1902.

PAUL SUPER,

General Secretary Y. M. C. A.,

A. B., University of Missouri, 1904.

H. W. PRENTIS, JR., A. B.,

Alumni Recorder.

A. B., University of Missouri, 1903.

MRS. LOUISE NORWOOD FITCH,

Matron.

MRS. IDA CUNNINGHAM,

Assistant Matron.

MRS. JULIA A. WATKINS,

Matron of the University Boarding Club.

APPOINTMENTS TO TAKE EFFECT SEPTEMBER 1, 1904

Assistant Professor in Law.

Assistant Professor of Romance Languages.

Professor of the History of Education.

Assistant Professor of Agronomy.

Assistant Professor of Mathematics.

School Inspector.

NON-RESIDENT INSTRUCTORS

Summer Session, 1903.

CLARENCE EASTMAN, Ph. D.,

Assistant Professor of German, Iowa State University.

LAWRENCE E. GRIFFIN, Ph. D.,

Professor of Biology, Missouri Valley College.

A. D. HOWARD, Ph. D.,

Assistant in Harvard University.

EUGENE MORROW VIOLETTE, A. M.,

Professor of History, State Normal School, Kirksville, Missouri.

LECTURERS BEFORE THE UNIVERSITY

Rev. J. William Jones, Chaplain-General U. C. V.; Chief Chaplain, Army of Northern Virginia, throughout the Civil War, 1861-65. Subject: Heritage and Duty of Sons and Daughters of Confederate Soldiers. September 26, 1903.

Hon. F. N. Judson, of the St. Louis Bar. Subject: The Crisis in Representative Government. October 22, 1903.

Hon. James A. Reed, Mayor of Kansas City, Missouri. Subject: State Pride. December 7, 1903.

Dr. W. L. Sheldon, of St. Louis. Subject: What It Means to Be a Citizen, and What We Ought to Mean by Love of Country. January 9, 1904.

Professor Shailer Matthews, D. D., Junior Dean of the Divinity School, University of Chicago. Subject: The Scholar in the Age of Transition. January 16, 1904.

J. M. Greenwood, LL. D., Superintendent of Schools, Kansas City, Missouri, During Summer Session, 1903.

President Richard Henry Jesse, LL. D., University of Missouri. Subject: The Leadership of the Federal Government in Education. February 2, 1904.

George Foot Moore, A. M., D. D., LL. D., Professor of Theology, Harvard University. Subject: Recent Excavations in the East. February 10, 1904.

SCHOLARS, 1903-1904

Agricultural Chemistry:

E. C. MEYERS, B. S. A., M. S. A., Iowa State College.

Economics:

WILLIAM THOMPSON NARDIN, A. B., University of Missouri.

English:

JEPHTHA RIGGS, A. B., University of Missouri.

GOLDY M. HAMILTON, A. B., University of Missouri.

Greek:

JOHN G. WELCH, A. B., University of Missouri.

History:

ERNEST VAN COURT VAUGHN, B. L., University of Missouri.

Latin:

HENRY THOMAS MOORE, A. B., University of Missouri.

MARGARET STUMP, A. B., University of Missouri.

Mathematics:

MARY S. WALKER, A. B., University of Missouri.

SARA B. F. RABOURNE, A. B., University of Missouri.

Political Science and Public Law:

JACOB CHASNOFF, A. B., University of Missouri.

Romance Languages:

ELIZABETH BEDFORD, A. B., University of Missouri.

GENERAL INFORMATION

Historical Statement:

The legislative act establishing the public school system was approved February 9, 1839, and that establishing the University was approved February 11, 1839.

The University was located at Columbia, Boone county, June 24, 1839. The cornerstone of the main building was laid July 4, 1840, and this is generally accepted as the date of the foundation of the University. Courses of instruction in Academic work were begun on April 14, 1841. A Normal Department was established in 1867, and was opened in September, 1868. In 1869 women were admitted first to the Normal Department, in 1870 to the Academic Department, and soon after to all Departments. The College of Agriculture and Mechanic Arts and the School of Mines and Metallurgy were made Departments of the University in 1870—the School of Mines and Metallurgy being located at Rolla, where it was formally opened November 23, 1871. The Law Department was opened in 1872; the Medical Department in 1873; and the Engineering Department in 1877. The Experiment Station was established, under act of Congress, in 1888. The Missouri State Military School was created a Department of the University in 1890. In June, 1896, the Graduate Department was established by the Board of Curators. In 1868 the State gave aid for the first time to the University—a sum of \$10,000. On January 9, 1892, the Main Building of the University at Columbia was destroyed by fire. In the following March, the Legislature gave for building and equipment \$236,577. In March, 1893, this fund was increased by a second appropriation of \$264,000, and by \$25,000 additional for a new building at Rolla. The Thirty-ninth General Assembly appropriated \$33,000 to build an additional club house at Columbia and the Fortieth erected a hospital. The Forty-first General Assembly gave for buildings at Columbia \$195,000, and for the same purpose at Rolla, \$87,000. The Forty-second General Assembly, in addition to appropriations for maintenance, has appropriated \$184,200 for buildings and \$152,000 for equipment and improvements at Columbia, and for equipment and improvements at Rolla, \$108,000.

For more detailed statements concerning the various Departments, see their special announcements in this Catalogue.

A. THE DEPARTMENTS, AT COLUMBIA.

REQUIREMENTS FOR ADMISSION.

The following are the requirements for admission to the various Departments:

Graduate Department:

Graduates of either sex of the colleges and universities comprising the Missouri College Union and of other reputable colleges and universities, and (in exceptional cases, by special permission of the Faculty) other persons of liberal education, are admitted to such graduate work as they are prepared for. See announcement of this Department.

Academic Department, and Teachers College:

Thirteen units are required for admission to each of these Departments. Students who pass on twelve (12) units will be admitted subject to a condition on one unit, *but students from Accredited Schools will not be admitted subject to a condition unless they are graduates of such schools.* The condition must be made up before the end of the period for entrance examinations the following September.

Beginning with June, 1905, fourteen (14) units will be required for entrance but a condition will be allowed on two of these units temporarily.

Law and Medicine. In Law and Medicine twelve (12) units will be required for the year 1904-5.

Engineering. In Engineering twelve (12) units will be required for 1904-5, and thereafter fourteen (14) units with one condition allowed for the year 1905-6.

Agriculture. In Agriculture twelve (12) units will be required for the year 1904-5, and thereafter thirteen (13) units with one condition allowed for the year 1905-6.

The subjects in which these units may be offered, the minimum and the maximum number of units that may be offered, in each subject, and the number of units required in certain subjects for each Department, are presented in the table given below.

SUBJECTS.	Required in the Several Departments.		Law	Medicine.....	Engineering! ..	Agriculture.
	Maximum..	Minimum..				
			For all Departments.....	Academic and Education.....		
English	4	2		8	8	8
Algebra.....	1½	1		1	1½	1
Plane Geometry.....	1	1			1	
Solid Geometry.....	½	½				
Plane Trigonometry.....	½	½				
History	4	1				
Latin.....	4	1				
Greek.....	8	1				
German.....	8	1				
French.....	8	1				
Spanish.....	6	1				
Physics.....	2	1				
Chemistry.....	2	1				
General Biology.....	2	1				
Zoology.....	2	1				
Botany.....	2	1				
Drawing	1	1				
*Shopwork.....	1	1				
Physiography.....	1	1				

DEFINITION OF UNITS IN THE SEVERAL SUBJECTS.

English. The four units that may be offered in English are as follows:

1. *Language.* The principles of the language, as given in any good modern high school grammar.

2. *Rhetoric and Composition.* The student will be required to show, by compositions on subjects given in the examination, a practical knowledge of the principles of sentence and paragraph structure and the ability to express himself coherently and idiomatically. The examination will not be one in formal rhetoric, but the study of a good elementary text-book is recommended.

3. *Literature.* The examination will be upon the masterpieces recommended for college entrance in the North Central States, or an equivalent offered by the candidate. The masterpieces recommended are:

*In the Academic Department and Department of Law Shopwork may not be offered.

For general reading: Shakespeare's *The Merchant of Venice* and *Julius Caesar*; The Sir Roger de Coverly Papers in *The Spectator*; Goldsmith's *The Vicar of Wakefield*; Coleridge's *Ancient Mariner*; Scott's *Ivanhoe*; Carlyle's *Essay on Burns*; Tennyson's *The Princess*; Lowell's *The Vision of Sir Launfal*; George Eliot's *Silas Marner*.

For minute and critical study: Shakespeare's *Macbeth*; Milton's *Lycidas*, *Comus*, *L'Allegro*, and *Il Penseroso*; Burke's *Speech on Conciliation with America*; Macaulay's *Essays on Milton and Addison*.

4. For the fourth unit the candidate may offer either:

Literature. A year's work in English or American literature in addition to that described under 3; or

History of the Language. A year's work in the history of the language (Lounsbury's or an equivalent text); or

Literature and History of the Language. Half a year's work in each.

Mathematics. The four units which may be offered in Mathematics are as follows:

Algebra. One unit. Elementary Algebra, including the elementary operations, solution of single and simultaneous linear equations, factoring, radicals, and the solution of numerical quadratic equations.

One and one-half units. Complete elements of Algebra; including the above; and in addition: solution of simultaneous quadratics; of higher equations solved as quadratics, of problems whose solution depends upon quadratics; the binomial theorem for *positive integral exponents*; logarithms, including the theory and the practical use of logarithms; ratio, proportion and progression; and the formation of equations with given roots.

The above work in algebra is supposed to be *preceded* by suitable work in arithmetic and in beginner's algebra. It is strongly recommended that teachers give at least the last half year preceding the regular algebra work, to the beginner's algebra, as an introduction to algebra, and a completion of arithmetic.

The text used should cover the ground in such algebras as Wells' *Higher Algebra*, Beman and Smith's *Academic Algebra*, or Milne's *Academic Algebra*. The work in Wells' *Essentials of Algebra*, Wentworth's *School Algebra*, or Milne's *High School Algebra*, is sufficient for the first unit, but not for the unit and a half.

Plane Geometry. One unit. The work in Plane Geometry, in order to be acceptable, *must cover a full year*, in some good text as Beman and Smith's *Geometry*, Phillips and Fisher's *Geometry*, etc. It is recommended that part of the year be spent upon the applications of algebra to geometry, and of geometry to algebra, along the lines indicated in a pamphlet issued by the department of mathematics, which will be sent upon application.

Solid Geometry. One-half unit: The work in solid geometry, in order to be acceptable, must cover a full half year's work, in such a text as those mentioned above. It is recommended that the work be accompanied by work of semi-laboratory character, which will be treated in the pamphlet mentioned above. Such laboratory work in mathematics will be allowed due weight in deciding the merits of schools and of individuals. Teachers are invited to attend the summer or regular sessions of the university, where such laboratory work will be carried on. After the year 1903-4, the subject of solid geometry will not be given in the University, except in certain drill classes in the Training School of the Teachers' College.

Trigonometry. One-half unit. This is supposed to cover a half-year in a high-school. It includes the elementary notions, logarithms, functions of obtuse angles, solution of right angled triangles, and some work in oblique triangles. This work will be accepted for admission to courses requiring trigonometry, but will not be accepted for advanced standing in the University.

One unit.: The work done in trigonometry in the high schools of the State has been unsatisfactory from the standpoint of the University, on account of the small time assigned it. Hereafter, if trigonometry be given, it is recommended that a full year be spent upon it. This should include such work as that given in Taylor and Puryear's Trigonometry (used in the University); and the student should be *thoroughly* drilled in logarithms, solution of right and *oblique* triangles, various processes of transformation, and the elements of spherical trigonometry.

History. The four units that may be offered in History are as follows:

General History. One unit: The equivalent of the work given in Myer's General History. **Two units:** The equivalent of the work given in Myers' Ancient History and Myers' Medieval and Modern History.

English History. One-half unit (see note below): The equivalent of the work given in Ransome's Short History of England. **One unit:** The equivalent of the work in Green's Short History of the English People.

American History. One-half unit (see note below): The equivalent of the work given in Johnston's The United States—Its History and Constitution. **One unit:** The equivalent of the work given in Channing's A Student's History of the United States. The examination in this subject will include questions on Civil Government.

Latin. The four units that may be offered in Latin are as follows:

1. Collar and Daniell's First Latin Book or the equivalent.

Note. A half-unit in English or American History will be accepted only when accompanied by at least one unit in General History.

2. Three books of Caesar's Gallic War with composition based thereon in Moulton and Collar's Preparatory Latin Composition or in Daniell's New Latin Composition. For one book of the Gallic War the equivalent in time of Viri Romae, Nepos, or Eutropius may be offered.

3. Two additional books of the Gallic War and four Orations of Cicero with compositions based thereon in the books mentioned above.

4. Ovid's Metamorphoses (2,000 lines) and four books of Vergil's Aeneid, with prosody.

Greek. The three units that may be offered in Greek are as follows:

1. White's First Greek Book, or Gleason and Atherton's First Greek Book.

2. Three books of Xenophon's Anabasis, Pearson's Greek Prose Composition, or its equivalent, Goodwin's Greek Grammar.

3. Ten orations of Lysias and the first four books of Homer's Odyssey, or an equivalent amount of other Greek authors. Bridgman's Parallel Exercises based on Lysias.

German. The three units that may be offered in German are as follows:

1. (a) Familiarity with inflection, the more common prepositions, the simpler uses of the modal auxiliary, and elementary word-order and syntax. (These specifications are in no sense restrictive, but are simply suggestive of the thoroughness required.) (b) Ability to translate a passage of simple prose at sight, with the help of a vocabulary of the less usual words. (c) Ability to pronounce German, and to recognize German words and simple phrases when spoken; intelligent and fluent reading of the text.

2. (In addition to 1.) (a) The translation of ordinary German at sight. This presupposes, in addition to the elementary requirement, the reading of works like the following: *Burg Neidick* (Riehl), *Die Journalisten* (Freytag), *Wilhelm Tell* (Schiller), from 200-250 pages. (b) A thorough knowledge of accident of the principal values of prepositions and conjunctions, and of the essentials of German syntax—particularly that of the modal auxiliaries and subjunctive and infinitive moods. (c) The writing in German of a paragraph upon some subject selected from the works specified above. (d) Ability to follow a recitation conducted in German, and to answer in that language questions asked by the instructor.

3. (In addition to 1 and 2.) (a) The translation of continuous English prose into idiomatic German. (b) A brief essay in German upon one of two subjects selected from works like the following: Freytag, *Doktor Luther*; Keller, *Dietegen*; Schoenfeld's *Historical German Prose*; Gutzkow's *Zopf u. Schwert*; Lessing's *Emilia Galotti*.

French. The three units that may be offered in French are as follows:

1. A knowledge of the main principles of grammar, and a good pronunciation; the ability to translate at sight ordinary nineteenth century prose, represented by not less than four hundred pages selected from at least three authors.

2. A year's work in addition to that outlined under 1. The candidate will be required to show proficiency in syntax, the ability to translate at sight standard prose into simple and idiomatic English, and some facility in writing in French short accounts connected with the works read, or in translating from English a passage of connected prose. Special attention should be paid throughout to pronunciation. Texts should be confined chiefly to standard works of the eighteenth and nineteenth centuries.

3. By a third unit in French is meant the results of a progressive study of the language during a third year under the same general conditions as for a second unit. These should comprise the reading of about a thousand pages of standard French, classical and modern; and the writing of numerous short themes in French, in which the rules of syntax may be correctly observed. The works should be read, not translated, with the exception of the more difficult passages.

Spanish. The three units that may be offered in Spanish are as follows:

1. A year's work, with the same requirements in grammar, pronunciation, and reading as for the first unit in French, described above.

2. A second year's work in Spanish, parallel to the second year in French, described above. It is recommended that the choice of texts for the second year be confined chiefly to standard works of fiction from the nineteenth century (Caballero, Alarcon, Valera, Galdos, Valdes).

3. A third unit in Spanish comprises the study of Cervantes, Don Quijote, and Novelas Ejemplares; Quevedo, Suenos; Guzman de Alfarache (Part 1); Lazarillo de Tormes. The last two, if difficult to be found, may be replaced by three plays of Lope de Vega and two of Calderon.

Chemistry. The two units that may be offered in Chemistry are as follows:

1. A year's work in Chemistry, five periods a week, of which at least three must be devoted to laboratory work.

2. A second year's work in the subject, with periods as above.

Note-books showing work done should be presented.

Physiography: 1. If a candidate desires to offer one unit in Physiography he will be examined according to the following scheme:

Air. Construction and interpretation of weather maps; use of instruments; relation of cyclones to wind direction, rainfall, and temperature; presentation of record of temperature and pressure observations kept through one school year.

Ocean. Construction and interpretation of tidal curves from tide tables; interpretation of depth charts and temperature curves.

Land. Determination of ten common minerals from their physical properties; determination of ten common rocks on the basis of mineral composition and structure; soils—determination of composition of selected examples; sands and gravels—recognition of constituents and derivation; mapping—(a) instruments used, scale, projection, methods; (b) presentation of a detailed contour map, drawn to scale, of at least one square mile, showing, besides relief and drainage, distribution of the various rock beds (limestone, sandstone, shale, etc.), soils (alluvial or non-alluvial), forest trees, etc.; reading of topographic maps with exercises in description of topographic types from study of the maps.

2. In case two units are offered the student will be required to present, in addition to the subjects named above for one unit, the following:

A map of four square miles showing in addition to the subjects shown on the map offered for the first unit, the roads, railroads, farm houses, forest, cleared land, mines, clay pits, and quarries; drawings of the soil and rock exposures in the clay pits, mines, and quarries of his neighborhood, showing the relative position, extent (within the pit or quarry), thickness, and character of each bed; a list and description of the various minerals and rocks found within the area of his map; and an examination and passing grade on the physical features of that part of the United States lying east of the Rocky Mountains.

Physics. The examination in Physics will be on both the text and the laboratory work. Laboratory note books should be presented.

The two units that may be offered are as follows:

1. A year's work of the grade done in an accredited high school.
2. A continuation of the laboratory for another year, or a year's work in a more advanced text together with laboratory work.

General Biology. The two units that may be offered in General Biology are as follows:

1. One year's work, including not less than five periods a week, three of which at least must be devoted to laboratory work. The following series of animal and plant forms is recommended: (1) Amoeba, (2) Paramecium or Vorticella, (3) Haematococcus, (4) Yeast Plant, (5) Spirogyra, (6) Hydra, (7) Mucor or Penicillium, (8) Earthworm, (9) Crayfish, (10) Grasshopper, (11) Fern, (12) Fresh-water Mussel, (13) Seeds and Seedlings, (14) Flowering Plant, (15) Frog, with metamorphosis.

2. More advanced work in the subject, with a study of additional forms, during the same length of time as required for 1.

Note-books and drawings showing work done must be presented.

Zoology. The two units that may be offered in Zoology are as follows:

1. One year's work with periods as described above for General Biology. The following series of animals is recommended: (1) Protozoa (Amoeba, and Paramoecium or Vorticella), (2) A Coelenterate (Hydra), (3) An Echinoderm (Sea-urchin or Starfish), (4) An Annelid (Earth-worm), (5) a Parasitic Worm (Cestode), (6) A Decapod Crustacean (Crayfish), (7) An Orthopterous Insect (Grasshopper, and comparison with other Orthoptera), (8) A Coleopterous Insect, (9) A Lepidopterous Insect, with larva and pupa, (10) A Hymenopterous Insect, (11) A Pelecypod Mollusc (Fresh-water Mussel), (12) An Amphibian (Frog, with metamorphosis).

2. More advanced work in the subject, with study of additional forms, during same length of time as required for 1.

The study of each form must include a consideration of (1) habitat, (2) geographical distribution, (3) food, (4) adaptations to environment, including relation to other forms of animal and plant life, (5) habits and functions, (6) life-history, and (7) structure. *Note-books and drawings showing work done must be presented.*

Botany. The two units that may be offered in Botany are as follows:

1. *Morphology and Physiology.* An equivalent of Bergen's Foundations of Botany and Coulter's Plant Relations.

2. *Histology and Taxonomy.* An equivalent of Gray's Botanical Textbook, Vol. I (in part) and Gray's Manual or Britton's Handbook.

Credit will be given for no work, unless note-books are presented.

Drawing. The one unit that may be offered in Drawing is as follows:

A year's thorough work in Freehand Drawing, or in Mechanical Drawing, or in a combination of the two. This unit is the equivalent of five laboratory periods a week throughout the year. Drawings must be presented by students desiring credit in this subject for entrance.

Freehand. The ability to draw and paint natural growths (leaves, flowers); to give correct proportions, perspective, and light and shade in drawing from geometric solids, vases, etc.; to paint with water colors from simple objects (fruit vases); to make designs suitable for book covers and school programmes, in black and white and in color.

Mechanical. Use of instruments and plain lettering; simple geometrical problems, plain freehand lettering and dimensioning; plans, elevations, and cross-sections; development of the *idea of plan, elevation,*

and *section* from geometrical solids; drawing accurately to scale plans, elevations, and sections from pupil's own measurements and dimensioned freehand sketches of simple machine parts; plan and elevation of some building measured by pupils. The explanation and practice of isometric and cabinet views as applied especially in joinery.

Combination. The ability to draw, as outlined under the Freehand Course, without the painting; the use of the instruments, plain lettering, the drawing of simple plans and elevations as outlined under the Mechanical Course.

Shopwork. One unit in Shopwork may be offered for admission to any Department except the Academic and Law Departments. The candidate must give satisfactory evidence of having completed a year's work (five periods a week of at least an hour and a half each) in Shopwork.

Time of Entrance Examinations:

Examinations for admission will be held at the University September 12, 13, 14, 1904. All persons desiring to enter the University during the first semester of the session of 1904-5, except those holding certificates of graduation from Accredited Schools and those who have already otherwise fulfilled the entrance requirements, must take these examinations. They should present themselves at the Registrar's office, room 18, Academic Hall, at 8 a. m., Monday, September 12. They will then receive directions concerning the rooms in which the examinations will be held.

The programme of examinations is as follows:

Monday, September 12.—English, 8:30-10:30; Algebra, 10:30-12:30; Plane and Solid Geometry and Trigonometry, 1:30-4; Greek, 4-6; Physiography, 4-6.

Tuesday, September 13.—History, 8:30-11:30; Shopwork, 11:30-12:30; Latin, 2-4; Chemistry, 4-6.

Wednesday, September 14.—Physics, 8:30-10:30; General Biology and Zoology, 10:30-12:30; Botany, 10:30-12:30; Drawing, 1:30-3; French and Spanish, 3-6; German, 3-6.

Entrance examinations will also be held on Monday, Tuesday and Wednesday of the opening week of the second semester and during the first three days of commencement week in June. The programme of hours for these examinations will be the same as indicated above.

Acceptance of Grades by Committee on Entrance:

All persons who wish to offer grades in place of an entrance examination in any subject should have them certified to by the proper official of the school in which the grades were made. Blank forms for such certificates will be furnished by the Registrar of the University upon appli-

cation. These certificates should be sent as soon as possible to the Committee on Entrance. This Committee will then notify the student that his grades are approved or that he will be required to take entrance examinations in the respective subjects. For admission of students from Accredited Schools, see page 53.

Advanced Standing:

Claims for advanced standing, in order to receive recognition, must be made by the student within one semester after entrance. Such claims must be presented to the Dean of the Department, except in the School of Engineering, where they must be presented to Professor H. B. Shaw, Chairman of Committee on Advanced Standing for the School of Engineering.

Students who wish to have their claims for advanced standing passed upon before matriculation may present them at any time to the proper authority.

Of his fitness to pursue advanced work the student must satisfy, by examination or otherwise, the Professors of the subjects which he elects.

Special Students:

Special students will be admitted to the University without passing the regular examination required for entrance, under the following conditions: (1) They must be at least 21 years of age; (2) they must show good reason for not taking a regular course; (3) they must pass such examinations or other tests as shall demonstrate fitness to pursue profitably all the subjects selected by them; (4) they will not be allowed to take work in more than two subjects, with such kindred work as the Head Professors may suggest. Special students are expected to do specially good work in the subjects which they choose and are required to take all regular examinations. If at any period of the session their work becomes unsatisfactory in one or both of the two major subjects, their connection with the University shall be severed by the Dean of the Department. Entrance cards for special students are issued by the Deans of the respective Departments.

Hearers:

Under exceptional circumstances persons over 21 years of age may, with the consent of the President, the Dean and the instructors concerned, be admitted to courses as Hearers. Hearers must be enrolled and pay fees, but are not required to take examinations, and receive no credit toward a degree.

ADMISSION FROM ACCREDITED SCHOOLS.

The University will admit without examination such graduates of an Accredited School as bring proper credentials of the fact that they have completed the subjects required for entrance to the Department which they desire to enter. For these requirements see table on page 44. It will admit free of entrance, library, and incidental fees for the first year the student graduating from the school with the highest honors.

The diploma will not be accepted as a credential. The student must present the proper form of certificate signed by the Principal or Superintendent of the Accredited School. Blank certificates will be furnished by the Registrar of the University upon application. The University recommends that Accredited Schools do not issue such certificates to any students except to those who have graduated. These Certificates should be filled out and sent to the Committee on Entrance, Columbia, Missouri. This Committee will then notify the student in due time that his certificate has been approved for entrance or that certain additions or corrections are necessary. As the necessity for correction appears in many cases, the student will avoid delay and inconvenience by sending the certificate *as soon as possible* and in any event some time in advance of the opening of the session.

ACCREDITED SCHOOLS.

Albany High School.	Chillicothe High School.
Alton (Ill.) High School.	Christian College, Columbia.
Aurora High School.	Clinton High School.
Bethany High School.	Columbia High School.
Blees Military Academy, Macon.	Columbia Normal Academy.
Bloomfield High School.	Covington (Ind.) High School.
Bonne Terre High School.	Culver (Ind.) Military Academy.
Boonville High School.	Davenport (Iowa) High School.
Brookfield High School.	DeSoto High School.
Buchanan College, Troy.	East St. Louis (Ill.) High School.
Butler High School.	Everton High School.
Cairo (Ill.) High School.	Fort Scott (Kan.) High School.
California High School.	Fort Smith (Ark.) High School.
Cameron High School.	Gallatin High School.
Carrollton High School.	Greenfield High School.
Carthage High School.	Greenville (Miss.) High School.
Carthage Collegiate Institute.	Hamilton High School.
Caruthersville High School.	Hannibal High School.

- Hardin College, Mexico.
Harrisonville High School.
Hosmer Hall, St. Louis.
Hot Springs (Ark.) High School.
Iberia Academy.
Independence High School.
Jefferson City High School.
Joplin High School.
Kahoka High School.
Kansas City Central High School.
Kansas City Manual Training School.
Kansas City (Kan.) High School.
Kemper Military School, Boonville.
Keokuk (Iowa) High School.
Kewanee (Ill.) High School.
Kidder Institute, Kidder.
King City High School.
Kirksville High School.
Kirkwood High School.
Lamar High School.
Lancaster High School.
Leavenworth (Kan.) High School.
Lexington High School.
Louisiana High School.
Marionville Collegiate Institute.
Marshall High School.
Mary Institute, St. Louis.
Maryville High School.
Memphis High School.
Mexico High School.
Miami High School.
Michigan Military Academy,
Orchard Lake, Mich.
Milan High School.
Moberly High School.
Monroe City High School.
Montgomery City High School.
Neosho High School.
Nevada High School.
Norborne High School.
Odessa High School.
Oklahoma City (Okla.) High School.
Oregon High School.
Paola (Kan.) High School.
Paris High School.
Pierce City High School.
Pine Bluff (Ark.) High School.
Poplar Bluff High School.
Princeton High School.
Quincy (Ill.) High School.
Rich Hill High School.
Richmond High School.
Rogers Academy, Rogers, Ark.
St. Joseph High School.
St. Louis Central High School.
St. Louis McKinley High School.
St. Louis Manual Training School.
Sedalia High School.
Shelbina High School.
Shelbyville High School.
Slater High School.
Smith Academy, St. Louis.
Springfield High School.
Sweet Springs High School.
Tipton High School.
Trenton High School.
Unionville High School.
University Academy, Columbia.
University Military School,
Mobile, Ala.
Vandalia High School.
Walther College, St. Louis.
Warrensburg High School.
Washington High School.
Webb City High School.
Webster Groves High School.
Wentworth Military Academy,
Lexington.
Westport High School.
Windsor High School.

Accredited Schools in Other States:

The University will admit without examination, such graduates of schools fully accredited by other State Universities, as comply with the requirements for admission from Accredited Schools, indicated on page 44.

Normal Schools:

Graduates of the three State Normal Schools in the advanced Latin course will be admitted by the Committee on Entrance to any Undergraduate Department of the University, without examination and without condition. They will receive, moreover, thirty-two (32) hours' credit for advanced standing in the Academic Department. Those who have graduated in the combined Latin and English course will receive thirty-six (36) hours' credit for advanced standing.

Inspector of Schools:

The position of Inspector of Schools has been established by the Board of Curators to facilitate the work of bringing the secondary schools into close connection with the University.

BUILDINGS AND EQUIPMENT.

Location:

The University of Missouri is located near the center of the State in Columbia, a town of about 6,000 inhabitants, situated half way between St. Louis and Kansas City.

It is conveniently reached from the east, north and west by the Wabash Railroad and connecting lines. The Missouri, Kansas and Texas Railroad affords a direct route to Columbia to persons living on that line, and to those living on the Missouri Pacific, St. Louis and San Francisco, and Kansas City, Fort Scott and Memphis Railroads.

The surrounding country is elevated, well drained and diversified. It is a limestone region, remarkable for its healthfulness. The University campus includes 32 acres of undulating ground in the southern part of the town. The Experiment Farm lies one square south of the Campus, and comprises 648 acres. The Horticultural Grounds (a part of the Farm) are one square east of the Campus and include about 30 acres.

Buildings:

The University has the following buildings:

On the Campus—Academic Hall, separate buildings for Agriculture, Chemistry, Engineering, Geology and Zoology, Law, Mechanic Arts, and Medicine, the Parker Memorial Hospital, the Laws Observatory, the power house, the President's house, and Benton Hall and Lathrop Hall—two

Dormitories for men; on the Farm—the Agricultural Farm buildings and the new Live Stock Judging and Dairy Buildings; on the Horticultural Grounds—the new Horticultural building, green-houses, and Read Hall—the new Dormitory for women.

New Buildings:

The Forty-second General Assembly has appropriated \$75,000 for the construction and equipment of a Physical Laboratory; \$69,200 for the construction and equipment of a Gymnasium for men; \$25,000 for an addition to the Chemical Laboratory, and \$15,000 for a Veterinary Hospital.

Laboratories and Museums:

Laboratories. Facilities for practical instruction in the sciences are provided in the following laboratories: Agronomy, Animal Husbandry, Anatomy, Astronomy, Bacteriology, Botany, Chemistry (including Agricultural Chemistry and Experiment Station work), Dairy Husbandry, Engineering (Civil, Electrical and Mechanical), Entomology, Experimental Psychology, Geology and Mineralogy, Horticulture, Internal Medicine, Pathology, Phonetics, Physics, Physiology, Physiological Chemistry and Pharmacology, Surgery, Veterinary Science, Zoology.

For the further equipment of laboratories the Forty-second General Assembly has appropriated \$25,000 in addition to several special appropriations for laboratories.

Museums. There are also museums of Agriculture, Classical Archaeology, Ethnology, Geology, and Zoology.

Shops. The shops of the University are so fully equipped as to admit of a rarely equalled range of industrial work, besides the common kinds of work as pursued in engineering shops, equipment has been provided for all the manual training work of a thorough teacher's course and special equipment has also been secured for the study of the questions pertaining to Keramics, Art Forging and Textile work. Individual effort towards some new mechanical achievement is encouraged in every way possible, the attempt being made to procure every necessary item of equipment.

Drawing Rooms. Rooms are provided for freehand drawing, mechanical drawing, and for special drawing in Civil, Electrical and Mechanical Engineering.

Dormitories:

The University has two Dormitories for men and one for women. For detailed information concerning these Dormitories and the boarding clubs connected with them, see pages 61-63.

ORGANIZATION AND GOVERNMENT.**Organization:**

The University Council consists of the President, Deans, Professors and Assistant Professors in all the Departments of the University. It is the highest organized body of the Faculty. Each Department of the University has its special Faculty, consisting of the Professors and some other teachers who give instruction in it.

The President is the executive head of the University, and is a member of all the Faculties.

Lectures and Recitations:

Lectures and recitations in all Departments, except that of Law, are held on six days in the week.

Religious Exercises:

Religious exercises are held every morning, attendance being voluntary. They consist of a hymn by the choir, readings from the Old and New Testaments, a brief prayer, and a closing hymn by the congregation. These exercises are made as attractive and beneficial as possible. During every session distinguished members of various churches have been invited to preach to the students and Faculty.

In Columbia there are churches of nearly all the prominent denominations. The University advises its students to attend regularly the services at the churches of their parents. The students maintain an efficient chapter of the Young Men's Christian Association, and one also of the Young Women's Christian Association. (See pp. 70-71.) The University exercises much moral and religious influence, but is non-sectarian.

Provisions for Young Women:

All Departments of the University are open to women except the Department of Military Science and Tactics. In the lecture-rooms they receive the same instruction and meet the same intellectual requirements as the men. There are special rooms—five in number—furnished with admirable equipment for health and comfort, and presided over by a matron, who has charge of all the young women in attendance. One of these rooms is fitted up as a gymnasium, containing all the appliances necessary for physical training. During lecture hours the young women, when not attending lectures, are expected to be in their waiting-rooms, or in the University library, or at their respective homes. The new Dormitory has accommodations for a limited number of young women. Board may also be secured at reasonable rates in private families.

With the opening of Read Hall, the University introduced as its Head, the Adviser of Women. The Adviser of Women stands to all the University-women-students for what the name indicates. She is prepared to assist them in finding comfortable places to live; to mediate between them and the faculty if occasion demands, and is at all times ready to consult with them upon any matter. Her office is in Read Hall, which is situated on the Horticultural grounds.

The fraternity houses of women, should in the future, have the same house customs as those existing at Read Hall.

Discipline:

In the government of the University, the President and the Faculty rely chiefly upon the sense of duty of the students. The student is expected to pursue his studies with diligence, to attend classes regularly, to live morally, and maintain good behavior. The removal of those who fail to meet these requirements is demanded in the interest of the University. Students are under the direct supervision of the University only when on the Campus, but they are responsible for their conduct wherever they may be.

Directions for Students:

1. New students should first satisfy the requirements for entrance. *This should be done before paying entrance fees.* Persons who have not had their certificates approved by the Committee on Entrance as indicated on page 53 should present themselves for examination. For time of examinations, see page 51.

2. After passing the entrance examinations students should present their credits to the Committee on Entrance who will issue them entrance cards to the Department they desire to enter if they have credits for sufficient units. Similar entrance cards will be issued by the Committee on Entrance to those students whose certificates have been approved by such Committee.

3. After receiving their entrance cards, students must pay their entrance fees to the Treasurer.

4. The Treasurer's receipt should be at once presented to the Secretary, who will enroll the student's name and give him his study-card, with necessary instructions for proceeding further.

5. If assistance is needed in obtaining board, men should apply to Professor Lipscomb. Women must in every case consult with the Adviser of Women before completing any arrangements for rooms or table board.

STUDIES.**Regulations in Regard to Studies:**

No student in any Department of the University may have more than 18 hours a week in the lecture room.

Academic students are expected to spend not less than 12 nor more than 16 hours a week at lectures or recitations. But students who are candidates for the Life Certificate may take 3 hours of Industrial work in addition to 15 hours of Academic work for each year.

One hour in the lecture-room is considered the equivalent of two and one-half hours in the laboratory, the drawing-room, or the shop.

Class-cards taken out at entrance must be properly filled out and deposited with the Registrar within three days after they have been issued.

Students who enter the University in the first semester and wish to make any change in their class-cards for the second semester, are required to make such changes on or before the close of first day of the second semester. Students that fail to comply with this requirement must pay a fee equal to one-half of the regular fees for the session, unless the delay has been clearly unavoidable and an excuse has been granted by the President.

Studies in Other Departments:

Students registered in one Department may, with the consent of their Dean, take work in other Departments if, in the judgment of the Professors concerned, they are prepared for such work. Students taking work in another Department than that in which they are registered are subject as respects this work to the rules of the Department in which the work belongs.

1. Academic students may take Hygiene in the Medical Department, and any Courses in the College of Agriculture and Mechanic Arts and in the Department of Education. None of these Courses, however, shall count toward the Academic degree unless it is allowed in the regulations respecting requirements for such degree.

2. Law students may take any instruction offered in other Departments of the University, but it shall not count toward any degree in Law.

3. Medical students in the first year may take any work offered in the Academic Department, and in the College of Agriculture and Mechanic Arts; and in their second and third years, any work offered in the University; but such work shall not count toward the degree of M. D., unless it is included in the regular Medical Course.

4. Students in the School of Agriculture may take as electives any studies approved by the Dean.

5. Engineering students may take in their Freshman and Sophomore years any instruction offered in the Academic Department, the Department of Education, and the School of Agriculture, and in their Junior and Senior years they may take anything offered in the University; but such instruction shall not count toward a degree in Engineering, unless it is included in the regular Engineering Courses.

6. No work shall count toward the Life Certificate to teach, except so far as it may conform to the requirements specified in the announcement of the Department of Education.

7. Instruction in Military Science and Tactics is open to men in all Departments, but it is counted towards no degree.

8. Students may take work in the Summer Session (see Appendix) and receive a credit therefor of seven hours for a term of eight weeks. No additional credit for summer work is allowed.

Graduate Studies:

See announcement of Graduate Department.

Examinations:

Examinations at the end of each semester close the studies pursued to that point.

Class Honors:

The honor of valedictorian is awarded in the various Departments to the student who has the highest average grade.

Reports:

From all Departments, except those of Law and Medicine, reports of students are sent, at the close of each semester, to the parents or guardians, showing their standing in the subjects that they are pursuing. The reports of students in Law and Medicine are sent out at the close of the session.

EXPENSES.

Fees and Deposits:

Students in the Academic Department, in the Department of Education, and in the School of Agriculture and Engineering pay an entrance, library, and incidental fee of \$5.

Students in the Departments of Law and Medicine (regular or special) pay \$10 a year. Students entering late or leaving early will not be entitled to any reduction in the amount of the fee.

State Cadets in the Academic Department or in the College of Agriculture and Mechanic Arts, including the School of Engineering, pay no entrance, library and incidental fee, but make all the laboratory and other deposits required of other students.

Graduate students in any Department of the University pay an entrance, library, and incidental fee of \$5 a year, and make all the usual deposits. Graduates of colleges and other universities will not be classed as graduate students if they take undergraduate work only.

Any student who takes any study whatsoever in Law or Medicine must pay the full fee of the Department.

The student who has attained the highest rank in the graduating class of any Accredited School will be permitted to enter the Academic Department of the University, or the College of Agriculture and Mechanic Arts (including Engineering) without the payment of the entrance, library and incidental fee for the first year. See Curators' Scholarships, pages 66-67.

No part of the entrance, library and incidental fee is remitted for late entrance or refunded for withdrawal.

Students entering a laboratory are required to make a deposit of \$5. From this amount there shall be deducted a fixed charge, in no case less than \$1, for each individual laboratory course, and also all extra charges for materials used or for damage to or loss of University property. If the deposit is insufficient to cover all such charges, the student will be required to make an additional deposit or deposits. The remainder of any deposit, after payment of all charges, is refunded to the student at the end of his laboratory Course in any session. University Fellows and Scholars are exempt from making these deposits in the subjects in which they hold fellowships or scholarships.

Laboratory deposits and rent of rooms in the Dormitories must be paid to the Secretary of the University; all other fees must be paid at the Boone County National Bank, to the Treasurer of the University. *All fees and deposits must be paid in advance.*

Students who by reason of sickness enjoy the privileges of the Hospital will be charged a reasonable amount therefor. See announcement of the Hospital in this Catalogue.

Any student who does not pay promptly his dues of any sort to the University is liable to suspension or dismissal.

Dormitories:

Dormitories for Men and University Boarding Club. The two Dormitories for men, Benton and Lathrop Hall, lodge 140 students, and meals

can be furnished by the University Boarding Club, which is established in the Dormitories, to about 400.

Each room in Benton Hall is furnished with a double bedstead, a table and two chairs, and in Lathrop Hall with two single bedsteads, a table and two chairs. The occupants are expected to supply whatever else they deem necessary. The rooms are lighted with electric lights. The buildings are provided with a good system of steam and hot air heating and ventilation, and with closets and bath rooms.

Only two students will be allowed to occupy one room, except with the consent, specially given, of the Executive Board; and when three thus occupy one room, each must pay full room rent.

The estimated cost of room rent, board, lights, and laundry is about \$2.25 a week.

The following charges are made by the University:

a. Room rent varies from \$15 to \$33 a year for each student, according to the location of the room. It includes heating, water and the attention of servants.

b. The fee for dining-room permit is \$15 a year.

Students who enter before October 15 will be charged the full amount. After October 15 a pro rata will be charged plus ten per cent of the pro rata.

c. A *caution* deposit of \$5 is made by each student who rents a room or receives a meal permit for the regular session, as security against damage to or loss of University property. This deposit is refunded at the close of the students' connection with the Dormitories or Club, provided all charges made against him by the University for such damage or loss have been paid in full.

The above charges are payable on or before the first of September to the Secretary of the University.

Students in the Summer Session who rent rooms in the Dormitories are charged \$3.50. All such students must make a caution deposit of \$3, which is returned at the close of the term, if no damage has been done to University property.

Students in the Short Course in Agriculture who rent such rooms in the Dormitories as are vacant at the time of their entrance are charged therefor in the proportion which the length of their course of instruction bears to the entire session. Such students are charged \$4 for a meal permit.

Board in the Dormitories for men is managed by the University Boarding Club, a club of students who elect their own officers (except Commissary and Treasurer, these are appointed by the Matron with the

approval of the Club and the Dormitory Board) ; levy and collect all assessments; buy their own provisions, and thus regulate their own expenses.

A matron is employed by the University to supervise the housekeeping and the preparation and serving of meals.

The Club charges each student an initiation fee of \$1. This fee is also required of students in the Short Course in Agriculture.

By special consent of the Secretary of the University students, who do not rent rooms in the Dormitories, may be allowed to take meals at the Club table upon the payment of the meal permit of \$15.

On no account will any person not duly matriculated in the University, or any person without the permit from the Secretary of the University, be allowed to receive table board in the Club.

No part of the amount paid for room rent or meal permits shall be refunded when students sever their connection with the Dormitories or Club, but with the consent of the Secretary of the University they may rent their rooms or assign their permits to others.

Order in the Dormitories for men is maintained by monitors, appointed by the Curators, who report any disorder to the Dormitory Board, consisting of the chairman of the Committee on Student Affairs, the Secretary of the University and the Dean of the Academic Department.

The University reserves the right to make changes in the rates given above before the opening of the next session.

As the accommodations of the Dormitories are limited, it is necessary for students who wish to engage rooms to make early application for them; they are frequently all engaged before the opening of the college year. In order to reserve a room it is necessary to make a deposit of \$5, which will be credited on the room rent when paid. The rooms are assigned in the order of application, and requests for them must be made to J. G. Babb, Secretary of the University.

Dormitory for Women:

Read Hall, the new Dormitory for women, was opened September, 1903. This hall lodges twenty-eight young women. The dining-room can accommodate thirty additional day boarders. The rent of rooms varies from \$35 to \$65 for each occupant, according to the location of the room; \$3.50 a week for board alone. The customs in Read Hall are such as would be found in any refined home. The hall is under the management of a Head, Miss Mary Elizabeth Lewis, who is also the Adviser of Women.

Although Read Hall is in its first year, it is already felt to be the social center of all the women students of the University. Women before

securing board even in private families must first consult the Adviser of Women.

Regulation of Boarding Houses. The University reserves the right to prescribe the rules under which its students shall board in private families, Dormitories, and Chapter Houses, or elsewhere, whether these rules are or are not published in the Annual Catalogue.

DEGREES AND CERTIFICATES.

Degrees:

The following degrees are now conferred by the University:

In the Academic Department, Bachelor of Arts (A. B.), Master of Arts (A. M.), and Doctor of Philosophy (Ph. D.).

In the Teachers College, Bachelor of Science (B. S.), in Education, Master of Arts (M. A.), and Doctor of Philosophy (Ph. D.).

In the School of Agriculture, Bachelor of Science in Agriculture (B. S.), and Master of Science in Agriculture (M. S.).

In the Law Department, Bachelor of Laws (LL. B.).

In the Medical Department, Doctor of Medicine (M. D.).

In the School of Engineering, Bachelor of Science (B. S.), in Civil Engineering, in Electrical Engineering, in Mechanical Engineering, and in Sanitary Engineering, respectively. The degrees of Civil Engineer (C. E.), Electrical Engineer (E. E.), Mechanical Engineer (M. E.), and Sanitary Engineer, are also given for graduate work.

In the School of Mines and Metallurgy at Rolla, Bachelor of Science (B. S.), and Bachelor of Science (B. S.), in Mining Engineering, in Civil Engineering, and in Chemistry and Metallurgy, respectively. The graduate degrees of Engineer of Mines (E. M.), and of Civil Engineer (C. E.), are also given.

Except that of Doctor of Laws (LL. D.), no degrees are conferred *honoris causa*.

For further information, see the announcements of the respective Departments in this Volume.

Certificates:

Certificates are given in the Departments of Education, and in Military Science and Tactics, and to students who have completed the prescribed Course in the Training School for Nurses.

COMMENCEMENT EXERCISES.

The Commencement Exercises occupy the four days ending with the first Wednesday in June of each year. For specific days, see Calendar, page III.

FELLOWSHIPS, SCHOLARSHIPS AND PRIZES.**University Fellowships and Scholarships:**

The University offers annually a number of fellowships yielding stipends of \$200, and scholarships with stipends of \$125. University Fellows and Scholars are exempt from payment of all fees and deposits in the subjects in which they hold fellowships and scholarships. These fellowships and scholarships will be awarded to the applicants who are best prepared and are of the highest promise in scholarship, irrespective of the lines of work they may desire to pursue. It is expected that Fellows and Scholars will be prepared for graduate work in the subject which they elect, and that they will devote themselves mainly to work in this subject. They will do no teaching, but may be called upon to render a limited amount of service to the University in other ways. Applications must be filed not later than March 15, in order to receive consideration in the award for the next Academic Year. Application blanks may be obtained from the Registrar of the University.

The James S. Rollins University Scholarships:

In 1889 the Hon. James S. Rollins left six thousand dollars (\$6,000) to endow six Scholarships in the University—"the interest" on this \$6,000 "to be forever used and appropriated under the authority and by the direction of the Board of Curators of the University of the State of Missouri, for the following purposes, that is:

"To found Scholarships to be awarded by the President and Faculty of the University—the vote in each case to be by ballot—as a reward for excellence and promise in—

"*First.* The College of Arts, for the degree of A. B., fifty dollars.

*"*Second.* The College of Arts, for the degree of B. S., fifty dollars.

"*Third.* The College of Agriculture and Mechanic Arts, for the degree of B. Agr., fifty dollars.

"*Fourth.* The College of Law, for the degree of LL. B., fifty dollars.

"*Fifth.* The College of Medicine, for the degree of M. D., fifty dollars.

"*Sixth.* The College of Engineering, for the degree of C. E., fifty dollars.

"These Scholarships are intended as a recognition of merit and character in the beneficiaries, and shall be payable on the first day of June of each year to that member of the *Junior class*, in each of the Colleges designated;

*The B. S. degree is no longer conferred in the Academic Department. This Scholarship is now awarded to a candidate for the A. B. degree making two in the Academic Department.

who shall be adjudged entitled to it by the President and Faculty; and the names of the persons receiving said Scholarships shall be publicly announced on Commencement Day by the President of the University.

"In according these Scholarships, it is earnestly impressed upon the President and Faculty of the University, that in the mind of the donor, purely intellectual and literary ability are not alone to be considered, but that the moral character of the contestants should be regarded as a factor of no small weight in coming to a decision.

"With the earnest hope that by the means here provided, worthy young men and women may in all coming time be helped and encouraged in their struggle toward a higher life and a greater usefulness, this fund is committed to the honor and good faith of the State, whom the Board represents, and by whose authority the donation is made and accepted."

Curators' Scholarships:

By order of the Board of Curators, the student who attains the highest rank in the graduating class of any Accredited School will be permitted to enter the Academic Department or the College of Agriculture and Mechanic Arts (including Engineering) without the payment of the first year's entrance, library, and incidental fee.

The following students were admitted during the session of 1903-4, under this provision:

Harry W. Briney.....	Bloomfield High School
Walter E. Dandy	Sedalia High School
Mabel H. Duncan	Columbia High School
Charles H. Fessenden.....	St. Louis Manual Training School
Edith E. Grace	Palmer (Mass.) High School
Maurice H. Hicklin.....	Lexington High School
Adam B. Keller (1903).....	Columbia Normal Academy
Richard King, Jr.....	San Antonio (Texas) Academy
Fred H. Krog	Washington High School
Pearl A. Le Compte.....	Pierce City High School
John W. Read (1902).....	Columbia Normal Academy
Clyde S. Shepard.....	Caruthersville High School
Andrew V. Small.....	Wentworth Military Academy
Virgil W. Surber	Moberly High School
Elsie Waddell.....	Kansas City Manual Training School

The student attaining the highest grade, or who shall be first in merit, in taking the degree of A. B., B. S., or B. L., in the graduating class of any of the universities or colleges composing the Missouri College Union, will be admitted to this University for the first year without payment of any tuition, library, or incidental fee. The Missouri College Union is now

composed of Washington University, Westminster College, William Jewell College, Drury College, Central College, Missouri Valley College, St. Louis University, Park College, Tarkio College, and the University of Missouri.

Free Scholarships in the Academic Department are offered to such students from the "Masonic Home of Missouri," at St. Louis, and the "Odd Fellows' Home," at Liberty, as may be prepared to enter the University.

The Laws Astronomical Medal:

A medal, called the "S. S. Laws Astronomical Medal," is offered annually at Commencement to the student who stands highest in Astronomy, and has at the same time attained a high average of general scholarship. An original thesis written on some astronomical subject, and showing capacity for scientific investigation, is required.

Dachsel Prize:

Ten dollars in money, by the late Charles Dachsel, engineer, of Jefferson City, Mo., is awarded for the best thesis on the Steam Engine.

McAnally Medal:

The McAnally Medal is offered for the best essay, thesis, or poem by a member of the Senior class, competing under certain rules laid down by the founder of the prize. Subject for 1904, "Thomas Hart Benton."

Law Prizes:

The Edward Thompson Company, Law Publishers, of Northport, New York, give annually to the author of the best thesis submitted by a member of the graduating class (*cum laude*) a prize consisting of a complete set of their famous American and English Encyclopedia of Law. This set consists of thirty-one volumes, and is valued at \$300.

The American Law Book Company, of New York City, give annually a complete set of the "Cyclopedia of Law and Procedure" to the student who, in the opinion of the Law Faculty, has made the best progress during his Senior year. All candidates for this prize must have been resident students for at least two years.

Hon. J. V. C. Karnes, Kansas City, Mo., gives the sum of fifty dollars (\$50.00), to be awarded to that student of the Senior or Junior class, who shall submit the best thesis upon some subject within the domain of Legal Ethics.

Military Prizes:

The Curators have provided a silver cup to be awarded each year to the best drilled company.

A gold medal is usually given annually to the best drilled private, and a target medal to the best marksman.

Stephens Medal:

Founded by the late Hon. James L. Stephens, of Columbia, and annually awarded for the best oration by a member of the Senior class. The prize consists of a book in defense of the Christian religion, and a gold medal, for the purchase of which the annual interest on \$500 is available.

William J. Bryan Prize:

Established by the Board of Curators through a generous donation by the Hon. W. J. Bryan, of Lincoln, Nebraska. The prize consists of \$17.50 in money or a medal of equivalent value, at the option of the successful contestant, and is awarded for the best essay on some subject pertaining to the Science of Government. In 1904-5 the William J. Bryan Prize will be awarded for the best essay on "Limitation of Legislative Power in Missouri," under the following conditions:

1. Competition is open to all students of the University.
2. The essays submitted shall contain not more than 2,500 words.
3. They must be in the hands of the Registrar of the University not later than 12 o'clock noon, of the first Saturday in May.
4. Each essay shall be signed with a fictitious name and be accompanied with a sealed envelope containing the real name of the writer and bearing the fictitious name on the outside.
5. An essay which is awarded a prize shall become the property of the University and be deposited in the Library.

William S. Woods Prize:

Established by the Board of Curators through a generous donation by the Honorable William S. Woods, of Kansas City, Missouri. The prize consists of \$50 in money and is awarded for the best essay on some subject pertaining to the history, people, or products of Missouri. In 1903-4 the William S. Woods Prize will be awarded for the best essay on "Admission of Missouri to the Union," under the following conditions:

1. Competition is open to Juniors of all Departments of the University. (The Committee on Graduation of each Department decides on the eligibility of competitors.)
2. The essays submitted shall contain not more than 3,000 words.
3. They must be in the hands of the Registrar of the University not later than 12 o'clock noon, on the first Saturday in May.
4. Each essay shall be signed with a fictitious name and be accompanied with a sealed envelope containing the real name of the writer and bearing the fictitious name on the outside.
5. An essay which is awarded a prize shall become the property of the University and be deposited in the Library.

SOURCES OF AID TO STUDENTS.**The Rollins Aid Fund:**

Anthony W. Rollins, M. D., an honored citizen of Boone county, father of the Hon. James S. Rollins, dying in 1845, left by his will the sum of \$10,000 in trust for the purpose of educating such indigent youths of Boone county, both male and female, as might be unable to educate themselves. Three-fourths of the annual interest on the fund, according to the directions of the donor, is to be devoted to the education of the youths of Boone county, and the remaining one-fourth is to be added to the interest-bearing principal. The fund amounts now to about \$40,000. The President of the University is required, at each annual Commencement, to invite the citizens who may be present to subscribe for the enlargement of this fund. The beneficiaries of this charity are annually selected by the President of the University from the indigent youths of Boone county, male and female. In compliance with the wishes of the donor, the selection is made with reference to the moral as well as the intellectual qualities of the youths inclined to avail themselves of the advantages of the fund, preference being given, in the selection of boys, to such as evince an inclination to preach the gospel.

Applications for aid from the Rollins Aid Fund must be in writing; a blank form will be furnished by the Secretary of the University, with whom it must be filed after it has been filled. The applicant must appear in person at the opening of the first semester, September 13, as no reservation will be made. No application should be made, or will be received, unless the applicant has passed the examinations for entrance and has been duly admitted to the University. Hereafter a part of the money given to each beneficiary may be paid at the opening of the first semester and a part at the opening of the second semester.

Cadetships:

Each Senator and Representative of the General Assembly of Missouri may appoint a cadet (and sometimes two cadets) from his district. For further information, see announcement of the Department of Military Science and Tactics.

Student Labor:

The sum of \$5,000 has been provided by the General Assembly for student labor during the present biennial period. Applications for work should be made to the Secretary of the University.

SOCIETIES.**Literary and Scientific:**

There are connected with the University at Columbia 14 societies for students—the “Graduate Club,” the “Athenaeum,” the “Union Literary,” the “Bliss Lyceum,” the “Medical Society,” the “Agricultural Society,” the “Missouri State University Debating Club,” the “New Era Debating Club,” “Der Deutsche Klub,” the “Sketch Club,” the “Zoological Field Club,” the “English Club,” the “Engineering Society,” and the “History Club of the University of Missouri.”

Musical:

The students maintain a Military Band and a Glee Club.

Young Men's Christian Association:

The object of this organization, which dates its existence in the University from January 18, 1891, is the same as in other institutions of learning, namely, the union of Christian students in Christian work. For the past four years the Association has been rapidly growing in strength, until now it is the largest college Association in the State, employing a general secretary who gives all his time to this work. Its membership is composed of men representing all phases of college life—oratory, athletics, debate, journalism, and the Glee Club. The work has been rich in good results.

A meeting is held every Sunday in the University Auditorium, addressed by students, professors, and prominent men from Columbia and other cities. This year over 200 men have met weekly in Bible classes led by students. Over 25 meet each week to discuss foreign missions.

The Association owns a lot situated immediately in front of the University Campus, and as soon as sufficient money can be secured a building will be erected for the use of the Association. A State University is a strategic point for religious work and there are few ways in which one could make a better use of money than by giving toward the erection of this building.

At the beginning of each scholastic year a committee from the Y. M. C. A., to be recognized by their badges, meets students at the train and freely render them valuable assistance by securing board, by introducing them to friends and to officers of the University, and by various acts of kindness. A letter sent in advance to the General Secretary of the Young Men's Christian Association, Columbia, Missouri, will receive prompt and cheerful attention.

An Employment Bureau is maintained for the purpose of securing work for those students who find it necessary to work their way through

the University. Many students make their way by their own efforts, but one should have at least \$35 or \$40 to start on, and upon which to fall back when work fails. The Bureau guarantees no one a position, but helps all who apply. Those who desire help of this kind should write to the General Secretary before coming to Columbia.

Young Women's Christian Association:

This Association, which is similar in its aims and methods to the foregoing, was organized April 2, 1891. Its object is the advancement of Christian work and the development of Christian life among the young women of the University. Meetings are held every Thursday at 4 p. m., in the Association room. The membership the past session was 180.

A number of Bible Courses are offered, as well as a class in Missions. The past year over 100 young women were enrolled in these classes.

The Association has found work for students who desire to pay part of their expenses.

The Association gives several unique entertainments each year. It endeavors through these to arouse a spirit of friendship among all the young women.

The Association will be glad to aid in any way any young woman who enters the University.

Alumni:

The Alumni Association is composed of all the graduates of the University. It holds an annual meeting on Tuesday of Commencement week, and is addressed in the University auditorium by an orator previously selected from its own body.

The objects of this society are the promotion of education, especially in the halls of the Alma Mater, the reunion of early friends and co-laborers in literary pursuits, and the revival of those pleasing associations which entwine themselves about university life.

The initiation fee for membership is \$1. This is the only charge imposed upon members, as the Association possesses an endowment of \$3,000, the income of which is used in defraying expenses of the annual meeting, etc. An initiation fee sent to F. W. Niedermeyer, Secretary, Columbia, Missouri, will lead to prompt enrollment.

The officers of the Association are: Lieutenant Governor Thomas L. Rubey, '85, President, Macon; Woodson Moss, '74, Vice-President, Columbia; F. W. Niedermeyer, '94, Secretary, Columbia; S. F. Conley, '90, Treasurer, Columbia.

The University publishes an alphabetical list of its graduates with their addresses. Graduates are requested to furnish the Alumni Recorder,

Columbia, Missouri, with information pertaining to such compilation.

A movement for a stronger organization of the Alumni has been inaugurated. The Alumni constitute, in fact, one of the largest elements in the life of the University, and, sufficiently organized, may become the most powerful agent in her development and prosperity. No effort should be omitted, both to strengthen the central organization at Columbia and to extend its branches throughout the State.

STUDENTS' PERIODICALS.

The students maintain and manage three periodicals. These are the *Independent* (weekly), the *Savitar* (annual), and the *Missouri Agricultural College Farmer* (monthly).

PHYSICAL TRAINING.

Gymnasiums:

Rooms in Academic Hall have been set aside for the gymnasiums, one for men and one for women, and equipped with the necessary apparatus. Adjoining rooms have been fitted with baths and lockers.

The Forty-second General Assembly appropriated sixty-nine thousand dollars for a new gymnasium which will be constructed in the future.

Athletic Grounds:

In addition to the Gymnasium there are Athletic Grounds, with base-ball and foot-ball fields. These are enclosed, a grand-stand has been erected, and tracks constructed for bicycling and running. In recognition of the generosity of members of the Rollins family in the construction of the athletic field it has been named by the Curators "The Rollins Athletic Field."

The University has also provided a large practice field and an excellent golf course upon the Agricultural College Farm.

Credit for Gymnasium Work:

A credit is allowed toward the degree of Bachelor of Arts of one hour for three hours' gymnasium work per week for each of four semesters.

Public Exercises:

In addition to the usual schedule of foot-ball and base-ball games there are gymnastic contests, strength tests, basket-ball contests, tennis tournaments and field days.

THE UNIVERSITY LIBRARY.*Staff.*

James Thayer Gerould	Librarian
Walter King Stone	Assistant Librarian
Duncan Burnet	Head Cataloguer
Edith Allen Phelps	Cataloguer
Jessie M. Allen	Cataloguer
Francis Potter Daniels	Cataloguer
Lynne Schill Owen	Copyist
Harold S. Williams	Night Librarian
Rufus W. McConnell	Law Librarian

The University Library comprises the General Library of the University, 11 Departmental Libraries, and the Library of the School of Mines. They contain in all about 60,000 volumes. In addition to the above, students have access to the collections of the State Historical Society, which contain about 23,000 volumes. Until a suitable building is erected for its use, the General Library is housed in the west wing of Academic Hall. It is open for reference use from 8:30 to 12:30 a. m., from 1:30 to 5 p. m., and from 7 to 10 p. m., every week day, and from 2 to 5 p. m., on Sunday. All students have the privilege of reference use and the right to draw out books from the Library for home use.

A card catalogue of the collection of books is nearly completed. The University will expend for books and periodicals during the current biennial period about \$35,000. In addition to the General Library in Academic Hall, the Library contains, as before noted:

The Law Library, in the Law Building.

The Agricultural Library, in the Agricultural Building.

The Horticultural and Botanical Library, in the Horticultural Building.

The Experiment Station Library, in the Agricultural Building and in various offices in other parts of the grounds.

The Chemical Library, in the Chemical Building.

The Geological Library, in the Museum Building.

The Engineering Library, comprising the collections of books on Civil, Electrical, and Mechanical Engineering, in the Engineering Building.

The Medical Library, in the Medical Building.

The Latin Library, in Academic Hall.

The Political Science Library, in Academic Hall.

The Romance Library, in Academic Hall.

Donations to the Library are acknowledged in the President's Annual Report to the Board.

During the year the Librarian will deliver occasional lectures on reference-work and bibliography.

B. SCHOOL OF MINES AND METALLURGY AT ROLLA.

See announcement of this Department.

DEPARTMENTS OF THE UNIVERSITY

The University comprises the following departments:

- I—Graduate Department.
 - II—Academic Department.
 - III—Department of Education.
 - IV—Department of Law.
 - V—Department of Medicine.
 - VI—Department of Military Science and Tactics.
 - VII—College of Agriculture and Mechanic Arts, embracing
 - A. *School of Agriculture.*
 - B. *Experiment Station.*
 - C. *School of Engineering.*
 - VIII—School of Mines and Metallurgy (At Rolla).
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I. GRADUATE DEPARTMENT.

I. ACADEMIC.

Admission:

Graduates of the colleges and universities comprising the Missouri College Union, and of other reputable colleges and universities, and (in exceptional cases, by special permission of the Faculty) other persons of liberal education, are admitted to such graduate work as they are prepared for. Admission to the Graduate Department, however, shall not be understood as implying admission to candidacy for advanced degrees. The credentials of candidates for admission to this Department will be passed upon by the Dean of the Academic Department.

University Fellowships and Scholarships:

The University offers annually a number of fellowships yielding stipends of \$200, and scholarships with stipends of \$125. University Fellows and Scholars are exempt from payment of all fees and deposits in the subjects in which they hold fellowships and scholarships. These fellow-

ships and scholarships will be awarded to the applicants who are best prepared and are of the highest promise in scholarship, irrespective of the lines of work they may desire to pursue. It is expected that fellows and scholars will be prepared for graduate work in the subject which they elect, and that they will devote themselves mainly to work in this subject. They will do no teaching, but may be called upon to render a limited amount of service to the University in other ways. Applications must be filed not later than March 15, in order to receive consideration in the award for the next Academic year. Application blanks may be obtained from the Registrar of the University.

Graduate Club:

A club has been organized by the graduate students for the purpose of furthering their social and scholastic interests in the University and of bringing themselves into touch with graduate-student-life elsewhere. This Club has joined the Federation of Graduate Clubs of the leading American universities.

Degrees:

1. *The Degree of Master of Arts.*—Only such students are admitted to candidacy for the Master's Degree as hold a Bachelor's Degree in Arts, Letters, Science, or Philosophy, equivalent to the Bachelor's Degree of the University of Missouri. Application for the Master's Degree will be considered on the basis of one year's graduate study in the University. Candidates for this degree are required to take at least twelve (12) hours a week throughout the scholastic year, at least six (6) of which must be chosen from the courses *Primarily for Graduates*, and the remaining hours selected from those *For Graduates and Undergraduates*, as announced under the Academic Department.

Candidates for the Master's Degree must choose their courses from one general subject together with such related subjects as may be approved by the Professor in charge of the candidate's main work.

A creditable thesis evincing capacity for original research and power of independent thought, in the line of the student's work, shall be submitted on or before May 1 of the given year.

The subject of the thesis and the courses chosen shall be laid before the Committee on Graduate Degrees on or before December 1 of each year.

At the close of the scholastic year the University Council may, on the report of this Committee, recommend to the Board of Curators for the Master's Degree, such candidates as have satisfactorily fulfilled these conditions.

2. *The Degree of Doctor of Philosophy.*—The candidates will be expected to spend at least three years, or, if he have a Master's Degree equivalent in value to the Master's Degree of this University, at least two years in graduate study in residence; but with the consent of the Faculty, one of these years may in either case be spent at some other institution, subject to the approval of the Committee on Graduate Degrees. The candidate must have received from some university or college a Bachelor's Degree in Arts, Letters, Science, or Philosophy equivalent to the Bachelor's Degree of the University of Missouri, and must attain in graduate study at this University a high proficiency in one branch of learning, and a respectable proficiency in at least one other. He must submit a dissertation embodying the results of original investigation, and must pass examinations in his major and minor subjects.

Candidates who have satisfactorily met these conditions may be recommended for the Doctor's Degree in the manner prescribed above for candidates for the Master's Degree.

II. TEACHERS COLLEGE.

The conditions of admission to graduate work and to candidacy for the degrees of Master of Arts and Doctor of Philosophy are essentially the same as those laid down by the Academic Department.

Before being admitted to candidacy for a Graduate Degree from the Teachers College, the student must give evidence of sound general knowledge of the history and theory of education, and must have had considerable experience in teaching.

All graduate students in the Teachers College, whether candidates for a degree or not, must make Education their major subject, but they may elect such related work as may be approved by the Head Professor of Education.

III. AGRICULTURE.

Candidates for the degree of Master of Science in Agriculture are required to do one year's graduate work at the University. This work must consist of at least 10 hours a week throughout the year, and the subjects selected must be advanced courses, and must be approved by the Dean and the Committee on Graduate Degrees. For courses offered, see announcement of the School of Agriculture.

IV. ENGINEERING.

Graduate work in Civil, Electrical, and Mechanical Engineering is offered at Columbia to those who have finished the Undergraduate Courses

in these subjects respectively with the degree of Bachelor of Science. Students who, entering under these conditions, have completed a year of graduate work or two years of professional practice and graduate work *absentia*, and passed satisfactory examinations thereon, and presented a thesis of real merit, will receive, according to the Course in which they have studied, the degree of Civil Engineer (C. E.), Electrical Engineer (E. E.), or Mechanical Engineer (M. E.). Graduate work in Hydraulic Engineering is offered to those who have completed the work in Civil and Mechanical Engineering.

The thesis subject shall be presented to the Committee on Graduate Degrees on or before November 1, and the thesis shall be presented to the same Committee on or before May 1, of the given year.

Courses of Instruction:

A special "Announcement of the Graduate Department" may be obtained by applying to the Registrar of the University. Consult, also, the courses announced in this Catalogue under the various undergraduate departments.

II. ACADEMIC DEPARTMENT.

FACULTY.

RICHARD HENRY JESSE, LL. D.,

President, and Professor of Ancient and Medieval History.

JOHN PICKARD, A. B., Ph. D.,

Professor of Classical Archeology and the History of Art, and Curator of the Museum of Classical Archeology, and Dean of the Faculty.

EDWARD ARCHIBALD ALLEN, Litt. D.,

Professor of English Language and Literature.

MILLARD LEWIS LIPSCOMB, A. M.,

Professor of Physics.

WILLIAM GWATHMEY MANLY, A. M.,

Professor of Greek Language and Literature.

†JOHN CARLETON JONES, A. B., Ph. D.,

Professor of Latin Language and Literature.

FRANK THILLY, A. B., Ph. D.,

Professor of Philosophy.

BENJAMIN FRANKLIN HOFFMAN, M. L.,

Professor of Germanic Languages.

RAYMOND WEEKS, A. B., Ph. D.

Professor of Romance Languages.

WILLIAM GEORGE BROWN, B. S., Ph. D.,

Professor of Chemistry.

JOHN RUTLEDGE SCOTT, A. B., A. M.,

Professor of Elocution.

ISIDOR LOEB, M. S., LL. B., Ph. D.,

Professor of Political Science and Public Law.

†Absent during session of 1903-4.

CURTIS FLETCHER MARBUT, B. S., A. M.,

Professor of Geology and Mineralogy, and Curator of the Geological Museum.

GEORGE LEFEVRE, A. B., Ph. D.,

Professor of Zoology, and Curator of Zoological Museum.

CHARLES ELLWOOD, Ph. B., Ph. D.,

Professor of Sociology.

CHARLES WILSON GREENE, A. M., Ph. D.,

Professor of Physiology and Pharmacology.

MAX MEYER, Ph. D.,

Professor of Experimental Psychology.

CLARK WILSON HETHERINGTON, A. B.,

Professor of Physical Training, and Director of Gymnasiums and Athletics.

BENJAMIN MINGE DUGGAR, M. S., A. M., Ph. D.,

Professor of Botany.

†CLARENCE MARTIN JACKSON, B. S., M. S., M. D.,

Professor of Anatomy and Histology.

EARLE RAYMOND HEDRICK, A. B., A. M., Ph. D.,

Professor of Mathematics.

HENRY CAPLES PENN, A. B., A. M.,

Assistant Professor of English Language and Literature.

SIDNEY CALVERT, B. Sc., A. M.,

Assistant Professor of Chemistry.

HENRY MARVIN BELDEN, A. B., Ph. D.,

Assistant Professor of English Language and Literature.

EVA JOHNSTON, A. M.,

Assistant Professor of Latin.

HERMANN BENJAMIN ALMSTEDT, B. L., Ph. D.,

Assistant Professor of Germanic Languages.

†Absent during session of 1903-4.

OSCAR MILTON STEWART, Ph. B., Ph. D.,

Assistant Professor (in charge) of Physics.

NORMAN MACLAREN TRENHOLME, A. M., Ph. D.,

Assistant Professor (in charge) of History.

EDWARD HOWARD STURTEVANT, Ph. D.,

Acting Assistant Professor of Latin.

WALDEMAR KOCH, B. S., Ph. D.,

Assistant Professor of Physiological Chemistry and Pharmacology.

RICHARD B. MOORE, B. S.,

Instructor in Chemistry.

WINTERTON CONWAY CURTIS, A. B., A. M., Ph. D.,

Instructor in Zoology.

MARY IDA MANN,

Instructor in Physical Training.

HERMAN SCHLUNDT, B. S., M. S., Ph. D.,

Instructor in Physical Chemistry.

CAROLINE TAYLOR STEWART, A. M., Ph. D.,

Instructor in Germanic Languages.

FLOYD WILKINS TUTTLE, A. B.,

Instructor in Physical Training.

JONAS VILES, A. M., Ph. D.,

Instructor in History.

WILLIAM LINN WESTERMANN, A. B., Ph. D.,

Instructor in Greek Language and Literature.

GRACE SARA WILLIAMS, A. B.,

Instructor in Romance Languages.

ELLEN DOUGLAS,

Instructor in Romance Languages.

CHARLES A. PROCTOR, A. B.,

Instructor in Physics.

LEWIS DARWIN AMES, B. L., A. B., A. M.,
Instructor in Mathematics.

JOSEPH S. SUMMERS, A. B., A. M.,
Instructor in Physics.

HOWARD SPRAGUE REED, A. B.,
Instructor in Botany.

ELEXIOUS THOMPSON BELL, B. S., M. D.,
Assistant in Anatomy.

CHARLES BROOKS, A. B.,
Assistant in Botany.

CHARLES O. GIESE, Ph. D.,
Assistant in Anatomy.

ALBERT CARLTON LYON, B. S.,
Assistant in Chemistry.

LOUIS INGOLD, A. B., A. M.,
Assistant in Mathematics.

LEONIDAS RUTLEDGE WHIPPLE,
Assistant in English.

CARL CONRAD ECKHARDT, B. Ph.,
Assistant in History.

ROBERT MORRIS OGDEN, B. S., Ph. D.,
Assistant in Experimental Psychology.

WILLIAM H. ZIEGEL,
Assistant in Mathematics.

FRANCES B. HATCHER, A. B., A. M.,
Assistant in Mathematics.

EUGENIA METZGER, M. D., L. M.,
Assistant in Anatomy.

ALLAN SAMUEL NEILSON, B. L.,
Assistant in English.

GENERAL REGULATIONS.

Requirements for Admission:

For information in regard to requirements for admission, see page 43.

Tuition Charges and Fees:

For information in regard to tuition charges, fees, scholarships, etc., see page 60.

Elective System:

All work in the Academic Department is elective; that is, the student makes such choice and combination of the studies offered in this Department as he desires, subject to certain restrictions explained below. Election is made for the entire session, except in the case of studies which are offered for only one semester. Those who elect such studies in the first semester must make a new election at the beginning of the second semester.

At the opening of the session each student makes out, on a blank form provided for the purpose, a list of the studies he wishes to pursue and deposits it with the Registrar. The list is then examined by a committee of the Faculty and if approved becomes the student's plan of work for the session (or for the semester—see preceding paragraph). If the plan presented is not in accordance with the regulations, the student is notified of the fact by the Registrar and required to present another plan.

The student may not take more than 16 nor less than 12 hours a week (Physical training not counted). But students who are candidates for the Life Certificate in the Department of Education may take 3 hours of Industrial work in any year in addition to 15 hours of Academic work. This Industrial work does not count toward an Academic degree.

When a student has elected a course that runs through both semesters, he must abide by his election unless he fails in the work of the first semester or can secure the permission of the Faculty to abandon it or to make a substitution.

Each Professor determines the special requirements for admission to the different courses offered by him or his assistants. These requirements are for the most part stated in the detailed explanation of the courses, see below. The student is advised to consult each Professor under whom he wishes to take work before making his election.

Requirements for Graduation:

The degree of Bachelor of Arts (A. B.) is the only undergraduate degree conferred in the Academic Department. In order to become a can-

didate for this degree a student must have met the following requirements:

1. He must have been regularly admitted to the Department. See page 43.

2. He must have completed at least twelve (12) hours in each of four subjects, and at least twenty-four (24) hours in a fifth subject, the subjects to be chosen from the following group:

Anatomy and Histology; Astronomy; Botany; Chemistry; Classical Archaeology and the History of Art; Economics; Elocution; English; Geology and Mineralogy; Germanic Languages; Greek; History and Political Science; Latin; Mathematics; Philosophy and Psychology; Physics; Physiology; Romance Languages; Pedagogy; Sociology; Zoology.

3. He must have completed at least one hundred and twenty (120) hours in all.

By "hour" is meant one period a week for one semester.

Besides the subjects mentioned under 2 above, the following courses in other Departments are open as electives to Academic students, and the candidate may present them (to an amount not exceeding nine (9) hours in all) as a part of the one hundred and twenty (120) hours required for graduation:

From the School of Agriculture: Entomology for not more than six hours; Agricultural Chemistry, for not more than six hours.

From the Medical Department: Hygiene for not more than three hours.

From the School of Engineering. Thermodynamics and Kinematics each for not more than three hours; Descriptive Geometry and Alternating Currents each for not more than six hours; Mechanics of Engineering for not more than nine hours.

From the Law Department: First year's work for not more than nine hours.

Academic students may elect Physical training three hours a week for four semesters, and receive a credit towards the degree of Bachelor of Arts of one hour for each semester.

The candidate may also offer, as part of the one hundred and twenty (120) hours, work done in the coming Summer Session to an amount not exceeding that allowed in the Summer Session. (See Appendix.)

COURSES IN DETAIL.

[Courses designated by a number with the letter a attached, thus: 4a, 6a, are given the first semester only. Those designated by a number with the letter b attached, thus: 4b, 6b, are given the second semester

only. [Those designated merely by a number are continuous courses and are given both semesters.]

Anatomy and Histology.

Professor JACKSON; Dr. BELL; Mr. GIESE; Mr. DuBois; Mr. GULLION;
Mr. GOODSON.

For Undergraduates.

1a. Osteology. A complete unmounted skeleton is issued to every two students for their use during this Course. A deposit of \$10 is required which is refunded less a fee of \$2 when the skeleton is returned uninjured. T. Th. S., at 8:30. Dr. BELL.

2. Practical Anatomy. *Two Laboratory periods and one Recitation a week.* Mr. GULLION; Mr. GIESE; Dr. BELL.

3. Descriptive Anatomy. A recitation and demonstration Course in systematic human Anatomy. M. W. F., at 8:30. Dr. BELL.

4. Normal Histology. Each student prepares, stains and mounts permanently at least 75 specimens of normal tissue. Lecture, W., at 9:30; Laboratory, Section I, T. F., Section II, M. W., 1:30-4. Mr. DuBois; Dr. BELL.

5b. Neurology. Including a study of the central nervous system and sense organs. Lectures and Laboratory. *Three times a week.* Professor JACKSON.

6a. Topographic Anatomy. Lectures and Laboratory. *Three times a week.* Dr. BELL; Mr. GULLION; Mr. GIESE.

For Undergraduates and Graduates.

9. Advanced Anatomy. Advanced work in Anatomy or Histology. Hours to be arranged. Professor JACKSON.

Primarily for Graduates.

10. Investigation. Problems of original research will be assigned in Anatomy or Histology. Hours to be arranged. Dr. BELL.

Astronomy.

Professor SEARES.

For Undergraduates.

1a. General Astronomy. Methods and fundamental facts underlying the science of Astronomy. Historical introduction, instruments, apparent motions of planets and stars, the solar system. T. Th. S., at 9:30.

2b. Modern Astronomy. Spectroscopic, photographic and photometric methods. Motions and distances of the stars; variable and temporary stars; double, multiple and binary stars; nebulae and clusters; cosmogony. T. Th. S., at 9:30.

Courses 1a and 2b are open to all students and may be taken independently of each other, but if one is elected the other is advised. The class room work of both Courses is supplemented by practical exercises in the Laws Observatory.

3a. General Astronomy. Open to students of junior standing who have completed the Courses in Elementary Mathematics and General Physics. M. W. F., at 9:30.

4a. Observatory Practice. Practical work with the instruments of the Laws Observatory. Open to students taking Course 3a. T. Th., 7:30-10 P. M.

5b. Spherical and Practical Astronomy. Open to students who have completed Differential and Integral Calculus and General Physics. T. Th., at 10:30; one Observatory period, hours to be arranged.

6a. Spherical and Practical Astronomy. Open to students who have completed Course 5b. Lectures and Recitations. T., at 10:30; Observatory practice, T. Th., 7:30-10 P. M.

7a. History of Astronomy. Open to students who have completed Courses 1a and 2b or 3a. M. W. F., at 10:30.

For Undergraduates and Graduates.

8b. Method of Least Squares, with applications to the problems of Astronomy and Geodesy. M. W., at 10:30.

9b. Interpolation and Mechanical Quadratures. The formulae of interpolation, numerical differentiation and integration developed and applied to the problems of Astronomy. M. W., at 10:30.

Courses 8b and 9b are given in alternate years. Course 8b will be offered in 1904-5. Both Courses are open to students who have completed Differential and Integral Calculus.

10. Celestial Mechanics, General Introduction and Theory of Cometary Orbits. Open to students who have completed Analytic Mechanics and Elementary Differential Equations and who have a reading knowledge of French and German. Hours to be arranged.

Primarily for Graduates.

11. Celestial Mechanics.

12. Research.

Courses 11 and 12 form a continuation of Courses 10 and 6a respec-

tively. The subjects considered are determined by the needs of the students who present themselves. Hours and credit to be arranged with the instructor.

The Laws Observatory:

The practical work of the Department of Astronomy is carried on with the instruments of the Laws Observatory.

The observatory, a building 84 feet long from east to west, and from 14 to 30 feet wide, stands on an elevated portion of the campus. The equipment consists of a 7 1-2 inch equatorial refracting telescope by Merz and Soehne, of Munich, a 2 1-10 inch transit instrument by Brunner, of Paris, a 2 1-8 inch altitude and azimuth instrument by E. & G. W. Blunt of New York, a Pickering stellar photometer and a disc photometer by Brashear, a theodolite, sidereal and mean-time clocks, sidereal break-circuit chronometer, chronograph, sextants, micrometer, spectroscope, and outfit of smaller instruments.

Clocks and instruments are mounted on piers of solid masonry, isolated from the floors and walls of the buildings, and are provided with the usual electrical connections. The dome of the telescope is 18 feet in diameter. A cone 14 feet in diameter, revolving on balls, shelters the altitude and azimuth instrument.

In the year 1880, Dr. S. S. Laws, then President of the University, contributed largely from his private funds toward the improvement of the observatory building and instruments. In recognition of this generosity the Board of Curators named the observatory in his honor.

The Laws Astronomical Medal:

A medal, called the "S. S. Laws Astronomical Medal," is offered annually at Commencement to the student who stands highest in Astronomy, and has at the same time attained a high average of general scholarship. An original thesis written on some astronomical subject, and showing capacity for scientific investigation, is required.

Botany.

Professor DUGGAR; Mr. REED; Mr. BROOKS.

For Undergraduates.

1a. General Botany. The first half of the semester is devoted to a study of cell structure and the fundamental principles of plant physiology. The student is taught to set up experiments and to keep a record of observations on plant activities. In the second half of the semester

2b. Modern Astronomy. Spectroscopic, photographic and photometric methods. Motions and distances of the stars; variable and temporary stars; double, multiple and binary stars; nebulae and clusters; cosmogony. T. Th. S., at 9:30.

Courses 1a and 2b are open to all students and may be taken independently of each other, but if one is elected the other is advised. The class room work of both Courses is supplemented by practical exercises in the Laws Observatory.

3a. General Astronomy. Open to students of junior standing who have completed the Courses in Elementary Mathematics and General Physics. M. W. F., at 9:30.

4a. Observatory Practice. Practical work with the instruments of the Laws Observatory. Open to students taking Course 3a. T. Th., 7:30-10 P. M.

5b. Spherical and Practical Astronomy. Open to students who have completed Differential and Integral Calculus and General Physics. T. Th., at 10:30; one Observatory period, hours to be arranged.

6a. Spherical and Practical Astronomy. Open to students who have completed Course 5b. Lectures and Recitations. T., at 10:30; Observatory practice, T. Th., 7:30-10 P. M.

7a. History of Astronomy. Open to students who have completed Courses 1a and 2b or 3a. M. W. F., at 10:30.

For Undergraduates and Graduates.

8b. Method of Least Squares, with applications to the problems of Astronomy and Geodesy. M. W., at 10:30.

9b. Interpolation and Mechanical Quadratures. The formulae of interpolation, numerical differentiation and integration developed and applied to the problems of Astronomy. M. W., at 10:30.

Courses 8b and 9b are given in alternate years. Course 8b will be offered in 1904-5. Both Courses are open to students who have completed Differential and Integral Calculus.

10. Celestial Mechanics, General Introduction and Theory of Cometary Orbits. Open to students who have completed Analytic Mechanics and Elementary Differential Equations and who have a reading knowledge of French and German. Hours to be arranged.

Primarily for Graduates.

11. Celestial Mechanics.

12. Research.

Courses 11 and 12 form a continuation of Courses 10 and 6a respec-

tively. The subjects considered are determined by the needs of the students who present themselves. Hours and credit to be arranged with the instructor.

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Clocks and instruments are mounted on piers of solid masonry, isolated from the floors and walls of the buildings, and are provided with the usual electrical connections. The dome of the telescope is 18 feet in diameter. A cone 14 feet in diameter, revolving on balls, shelters the altitude and azimuth instrument.

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Botany.

Professor DUGGAR; Mr. REED; Mr. BROOKS.

For Undergraduates.

1a. General Botany. The first half of the semester is devoted to a study of cell structure and the fundamental principles of plant physiology. The student is taught to set up experiments and to keep a record of observations on plant activities. In the second half of the semester

a series of representative cryptogams is studied. Lecture, T., at 10:30; Laboratory, Section I, T. Th., 1:30-4; Section II, W. F., 1:30-4. Prof. DUGGAR; Mr. REED; Mr. BROOKS.

2b. General Botany. This Course continues the study of representative groups begun in 1a, dealing with the embryology and anatomy of certain gymnosperms and angiosperms, concluding with some general work in ecology. Lecture, T., 10:30; Laboratory, Section I, T. Th., 1:30-4; Section II, W. F., 1:30-4. Prof. DUGGAR; Mr. REED; Mr. BROOKS.

The foundation work in Botany is offered through Courses 1a and 2b: and these Courses or their equivalents are prerequisites for all other regular work in the subject. They represent a continuous treatment of general principles, but may often be taken separately to advantage. 1a, for example, is more important for students in the medical courses.

3a. The Ecology and Distribution of Plants. The first part of the semester is devoted to a study of the plant societies growing in the vicinity of Columbia, and the remainder to a laboratory study of the influence of environment on form and habit. Lecture, T., 8:30; Laboratory, T. Th., 1:30-4. Mr. REED.

For Undergraduates and Graduates.

6. Mycology. Studies in the morphology and physiology of representative groups of fungi, including the bacteria. In this Course special attention is also given to culture methods, pathological work with fungous diseases, and the collection and preservation of fleshy fungi. Lecture, Th., 8:30; Laboratory, W. F., 1:30-4. Professor DUGGAR; Mr. BROOKS.

7b. Embryology. A study as comprehensive as the time will permit of the embryology and homologies of representative groups of green plants, also special work in the mitosis of the progametes and microtechnique. (This Course will not be offered during 1904-05.) Lecture, T., 8:30; Laboratory, T. Th., 1:30-4. Professor DUGGAR.

8b. Histology and Cytology. Cell structure, mitosis, tissue structure and organography, heredity, microtechnique. (This Course will be offered in 1904-5, alternating with 7b.) Lecture, T., 8:30; Laboratory, T. Th., 1:30-4. Mr. REED.

9b. Advanced Physiology. Lectures and experimental work relating to nutrition and growth, the effects of stimuli and toxic agents on cell activities and development, also variation and inheritance. *Three times a week.* Hours by appointment. Professor DUGGAR.

Primarily for Graduates.

12. Research. Problems for investigation may be assigned in any of the general lines of work for which the student may be best prepared.

Recent additions to the equipment make it possible to offer the best facilities along physiological (ecological) and mycological (including pathological) lines. *Three times a week.* Hours by appointment. Professor DUGGAR; Mr. REED.

13. Seminary. The seminary offers to advanced students an opportunity to become familiar with current work in Botany. Reports on appropriate topics will be required, as well as reports on any research work in progress. *Once a week.* Professor DUGGAR.

Chemistry.

Professor BROWN; Assistant Professor CALVERT; Mr. MOORE; Dr. SCHLUNDT; Miss MOXNESS; Mr. LYON; Mr. LIEPSNER; Mr. WOODS.

For Undergraduates.

1. General Inorganic Chemistry. Lectures, laboratory work, problems and recitations. Lectures, M. W., at 9:30; Recitation, F.; Laboratory (see schedule of hours). *Six hours.*

2. General Inorganic Chemistry. Lectures, laboratory work, problems and recitations. Lectures, M. W., at 9:30; Recitation, F.; Laboratory (see schedule of hours.) *Four hours.*

3a or 3b. Organic Chemistry. (Introductory Course.) Lectures, laboratory work and recitations. *Three times a week.* May be taken by students in Agriculture, Botany and Biology. Assistant Professor CALVERT.

5a or 5. Qualitative Chemical Analysis. Laboratory work, and lectures. *Three times a week.* Mr. MOORE.

6a and 6b. Quantitative Chemical Analysis. Laboratory work. *Three times a week.*

For Undergraduates and Graduates.

4. Organic Chemistry. Lectures, laboratory work and recitations. *Three times a week.* Assistant Professor CALVERT.

7. Preparation of Organic Compounds and Organic Analysis. *Three times a week.* Assistant Professor CALVERT.

8b. Chemical Theory. Lectures and recitations. *Three times a week.*

9a. History of Chemistry. Lectures and recitations. *Three times a week.*

Courses 8b and 9a should be preceded by Courses 1 or 2 and 4.

10. Physical Chemistry. Lectures, laboratory work, and recitations. *Three times a week.* Dr. SCHLUNDT.

11a. Electro-Chemistry. Lectures, laboratory work, and recitations. *Three times a week.* Dr. SCHLUNDT.

14. Inorganic Preparations. *Three times a week.*
 15. Advanced Quantitative Chemical Analysis. *Six times a week.*
 16a or 16b. Advanced Organic Chemistry. Selected chapters.
 Lectures. *Three times a week.* Assistant Professor CALVERT.

Primarily for Graduates.

20. Research. This will consist principally of original work and investigations in Inorganic, Organic, and Physical Chemistry, and will be adapted in some measure to individual cases.

Classical Archaeology and the History of Art.

Professor PICKARD.

For Undergraduates.

1. History of Modern Painting, particularly of French, English, and American Painting. Lectures and collateral reading. Critical study of representative pictures by means of lantern slides, photographs and other reproductions. W. F., at 2.

2. Classical Mythology. The myths as they are represented in literature and in Greek and Roman Art. Recitations and illustrated lectures.

For Undergraduates and Graduates.

6. History of Greek Art. A preliminary study of Assyrian and of Egyptian Art, followed by a study of the development of Greek Architecture and Sculpture. Lectures, collateral readings, essays, with constant use of the lantern, photographic reproductions, and models and casts in the Museum of Classical Archaeology. Greek History (Greek 6a) is recommended to the students of this Course. T. Th. S., at 2.

7a. Mycenaean Art or Art of Primitive Greece. The earlier discoveries at Mycenae, Tiryns and elsewhere will not be neglected but special attention will be given to the most recent publications on Troy, Crete, and the Argive Heraeum. M., at 8:30.

8b. Introductory Study of Greek Vases and Vase Paintings. Reference book, Pottier's Catalogue of the Louvre Vase Collections, M., at 8:30.

While a knowledge of the Greek language is not an absolute prerequisite for 7a and 8b, these Courses are intended for advanced students in Greek.

9. Etruscan and Graeco-Roman Art. This Course should be preceded by Course 6. It will deal with the earliest art of the Italian Peninsula,

endeavor to show how this art reached its highest development among the Etruscans, how Etruscan influenced early Roman Art, how later Roman Art grew out of early Roman and late Greek Art modified by the circumstances and character of the Romans. Roman History (Latin 12b) is recommended to students in this Course. M. W., at 9:30.

10. Roman Life. A systematic study of the topography of Rome and of the extant remains particularly of Rome and Pompeii. Lectures and readings. Illustrated by the use of plans, maps, and lantern slides. As supplementary to this Course, Roman Public and Private Life (Latin 5) is recommended. T. Th., at 11:30.

11. History of Renaissance Painting. *First Semester:* Italian Painting. *Second Semester:* Painting of the Netherlands and of Germany. This Course should be preceded or accompanied by History 1. With Italian Painting, History 10b is also earnestly recommended. T. Th. S., at 4.

13. Masterpieces of Architecture, Sculpture, and Painting of Classical, Renaissance and Modern Times. Lectures fully illustrated with the stereopticon. This Course aims to show the historical development of art by the discussion of some of the finest examples in each of the three divisions mentioned. M., at 2.

Primarily for Graduates.

14. Topography and Monuments of Athens. Frazer's Pausanias will be taken as the basis of discussion. Reading knowledge of Greek, French and German required. T. Th., at 8:30.

15. Archaeological Seminary. Hours and work to be arranged.

As supplementary to all Courses offered in the history of Painting and of Sculpture the Theory of Representation (Free Hand Drawing) is recommended.

Museum of Classical Archaeology:

The Museum occupies the third floor of the west wing of Academic Hall. It is supplied with models of temples representing the three orders of Greek Architecture, and with plaster casts of representative specimens of Greek and Roman sculpture. These are arranged chronologically and on the walls are hung many framed photographs of other works of classic art. Many casts and four original specimens of Egyptian sculpture have been added during the past year. The Museum possesses a large number of unframed photographs and an extensive collection of lantern slides.

Renaissance and Modern Paintings:

The collections of photographs, lantern slides, and other means of illustrating courses in these subjects have been very largely increased dur-

ing the past year. For reproducing the color of the originals a *Kromskop* and lantern slides made by the *trichrome* process are used. The picture gallery near the Museum of Classical Archaeology is hung with carbon photographs, photogravures, and other reproductions of masterpieces of painting.

Economica.

Professor POPE.

For Undergraduates.

1. **Elementary Economics.** *First Semester:* Introduction to Economics. *Second Semester:* Economic History of England and the United States. This Course is designed to be an introduction to the other Courses offered in the department; and also to give those students who only take this Course a broad grasp of the fundamental principles and problems of Economic Science. Text: Seager's Introduction to Economics; supplemented by lectures and outside reading. M. W. F., at 3.

For Undergraduates and Graduates.

2. **Science of Finance.** Adam's Science of Finance is used as the text, but Seligman and other leading authorities are consulted freely. Open to those who have had Course 1. Should be accompanied by Political Science 7b. M. W. F., at 8:30.

3. **Economic Problems.** This Course is designed to follow Course 1. As an introduction a part of the first semester will be given to the study of the theory and technique of statistics. Some of the problems that will be considered are: hindrances to the movement of capital and labor, trade unions, arbitration, factory legislation, socialism. The work will be largely based on state and national reports. Lectures, essays, and private readings. M. W. F., at 9:30. Not given in 1904-5.

4a. **Agricultural Economics.** This Course treats of those principles which underlie the prosperity of the farmer, and of all other classes in so far as they are dependent on agriculture.

In part I, the general phases of the entire agricultural industry are dealt with. Such questions are taken up as: history of agricultural industry; agricultural resources of the world; physical conditions affecting agriculture; the agricultural market; transportation of agricultural products; agricultural labor; farm ownership and tenancy, mortgages, etc.; business co-operation in agriculture. Part II treats of the relation of agriculture to other industry, and to the industrial order; and the relation of legislation to agriculture. *Two hours a week.* Hours to be arranged.

4b. **Economic Geography of the United States.** This Course is designed to follow Course 3a in Geology, and is only open to those students who have taken this Course and Course 1 in Economics. This Course will have for its aim the study of the growth and present distribution of the industries of the United States, and the forces that have influenced such growth and distribution. Attention will be given to trade routes, the movements of internal commerce and relation of internal development and resources to foreign commerce. In general the Course will attempt to show the relation between the natural resources and the economic activities. *Three times a week.* Hours to be arranged.

5a. **Money, Credit and Banking.** The origin of money and its natural history with the aim of forming accurate and correct ideas regarding the nature and importance of a proper monetary standard. The history of monetary legislation in the United States; the history of banking in the United States, and a comparative study of the banking systems of the leading nations of the world. Text: Scott's Money and Banking. Supplemented by lectures. *Three times a week.* M. W. F., at 9:30.

5b. **Railway Problems.** Railroads are treated in their relation to the investor, the employes, the public, and the state respectively. A preliminary study is made of the history of railways and railway policy in the United States and Europe. The problems of railway management are discussed in so far as they have an economic bearing. Among the subjects treated are: financial methods, railway construction, speculation, profits, failures; accounts and reports, tariffs, principles of rates, classification and discrimination, competition and pooling. Attention is given to methods of regulation and legislation in the United States, as compared with European methods. Lectures and private reading. *Three times a week.* M. W. F., at 9:30.

Primarily for Graduates.

6. **Economic Theory. Dynamics.** Lectures and essays. *Three times a week.* Hours to be arranged.

7. **Seminary.** Open to graduates and those who, in the opinion of the instructor, are fitted for the work. *Two, three, or four times a week.* Hours to be arranged.

Elocution.

Professor SCOTT.

1. *First Semester:* Foundation theory and practice of vocal culture and expression. Breathing for conscious voice-support; phonetics, applied to syllabic form and enunciation; stress, inflection, quantity, and quality;

phrasing; movement and rhythmus; melody, intonation, and cadence; analysis of short prose and poetic passages, for the recognition and establishment of the correlation of utterance with thought and feeling. Text-book; Raymond's Orator's Manual. *Second Semester*: Principles of bearing, walk, and gesture; the practice of short oratorical extracts, with the study of the *rationale* of appropriate utterance and action. To be followed by the study of more extended passages and entire compositions, prose and poetic, as readings and recitations. Text-book: Raymond's Orator's Manual. Section I, T. Th. S., at 9:30; Section II, M. W. F., at 10:30; Section III, T. Th. S., at 11:30; Section IV, M. W. F., at 2.

2. Advanced Work. The interpretative study of plays, scenes, poems, and imaginative literature generally. Selections will be made jointly by the Professor in charge and the class, from Shakspeare, Milton, Scott, Tennyson, Browning, Dickens, Poe, Ruskin, and other representative writers. The emotional and spiritual, as well as the intellectual, elements of literature will be the objects of study and embodiment. This Course is continuous through two semesters, and must be preceded by Course 1. Section I, T. Th. S., at 10:30; Section II, M. W. F., at 11:30.

3. Teachers Course. This Course is offered to students in the Teachers College, and counts toward the Academic degree and the Life Certificate to teach. It must be preceded by Course 1, and will comprise: (a) The criteria of vocal expression—time, pitch, quality, and force—with copious examples; (b) The method of teaching children to read. Text-book: S. H. Clark's How to Teach Reading in the Public Schools. W., at 3.

Freshmen are not admitted to the classes in Elocution.

A credit of 3 hours is given for the completion of Course 1; no credit is allowed for less than the full year's work. In Course 2, each semester's work receives a credit of 2 hours.

English.

Professor ALLEN; Assistant Professor PENN; Assistant Professor BELDEN;
Mr. WHIPPLE; Mr. NEILSON; Miss LEWIS.

For Undergraduates.

1. English Composition and Rhetoric. Detailed study and practice in Construction and the Kinds of Composition. Lectures, exercises and themes; class-room study of literature illustrative of the different kinds of Composition. Recommended for the first year. Sections I, III, and VIII, M. W. F., at 8:30; Sections, II, IV and IX, T. Th. S., at 8:30;

Sections, V and X, M. W. F., at 11:30; Sections, VI and XI, T. Th. S., at 11:30; Section VII, T. Th. S., at 9:30. Assistant Professors PENN and BELDEN, and Messrs. WHIPPLE and NEILSON.

Course I is open to all Freshmen. Before enrolling in any other Course students must get the consent of instructor.

2a. Higher Composition, expository and argumentative. Must be preceded by I or its equivalent. M. W. F., at 11:30. Assistant Professor BELDEN.

16b. Teachers' Course in Composition. Intended for Juniors and Seniors who are candidates for the Life Certificate. M., at 11:30. Assistant Professor BELDEN.

17b. English Versification. W. F., at 11:30. Assistant Professor BELDEN.

3. English Literature. General View. *First Semester*: Chaucer to Shakspeare. *Second Semester*: Milton to the present. Recommended as preliminary to other Courses in Literature. Section I, T. Th. S., at 9:30; Section II, T. Th. S., at 10:30; Section III, M. W. F., at 10:30. Professor ALLEN and Assistant Professor BELDEN.

4. English Literature. Nineteenth Century. *First Semester*: The Poetry of the Romantic Revival (Burns, Wordsworth, Coleridge, Byron, Shelley, Keats). *Second Semester*: The Prose Writers of 1800-1860. Lectures. Class-room study of texts, parallel readings, and occasional essays. T. Th. S., at 10:30. Assistant Professor PENN.

10. American Literature. (a) Sectional Development; (b) Growth of Nationality; (c) Present Tendencies. The leading writers in prose and verse will be considered first as to their intrinsic worth and secondly as illustrative of national development. T. Th. S., at 9:30. Assistant Professor BELDEN.

11. *First Semester*: History of the English Language. Lectures and text-book. *Second Semester*: Study of Modern Prose Style, based upon masterpieces of representative authors. Essays and reports. T. Th. S., at 11:30. Professor ALLEN.

For Undergraduates and Graduates.

5. English Literature. Eighteenth Century. *First Semester*: Dryden and Pope. *Second Semester*: Swift and the Novelists. W. F., at 9:30. Assistant Professor BELDEN.

6. English Literature. Seventeenth Century., exclusive of the Drama. W. F., at 9:30. Assistant Professor BELDEN.

7. English Literature. Shakspeare. Eight to ten selected plays; class-room reading and interpretation; detailed study of style. M. W. F., at 3. Assistant Professor PENN.

8. English Literature. Shakspeare. The plays in approximate chronological order. A study of the development of Shakspeare's art and genius. W. F., at 10:30. Assistant Professor PENN.

9. English Literature. Poetry of the Victorian Age—Tennyson, Browning, Arnold, etc. Readings, class-room study and interpretation of texts, and occasional papers by members of the class. M. W. F., at 10:30. Assistant Professor PENN.

12. Anglo-Saxon. Prose and Poetry. M. W. F., at 11:30. Professor ALLEN.

13. Middle English. W. F., at 8:30. Professor ALLEN.

14a. The French Element in English. Knowledge of French and Latin necessary. W. F., at 9:30. Professor ALLEN.

18. The English Novel: Its development. The novel will be studied as a form of literature, and its changing methods will be carefully considered, from its beginnings to the present time. T. Th. S., at 10:30. Miss LEWIS.

19. The English Drama (exclusive of Shakspeare) from its beginnings to the Restoration. Lectures, selected plays, and reports. Occasional essays. T. Th. S., at 11:30. Assistant Professor PENN.

Primarily for Graduates.

15. Anglo-Saxon (Advanced Course). *First Semester*: Beowulf; Anglo-Saxon grammar (phonology), and brief history of the language. *Second Semester*: Cynewulf, and selected miscellaneous poems; history of Anglo-Saxon literature. T. Th. S., at 3. Assistant Professor PENN.

20. Seminary for advanced students in literature. The topic for 1904-5 will be the "Heroic Poem" in the seventeenth century—Cowley, Milton, Davenant, and others. M. W. F., at 3. Assistant Professor BELDEN.

Courses 5 and 6 are given only in alternate years. Course 5 will be given in 1904-5. Students will be admitted only to such courses as they are prepared for. They should in all cases consult the Professor before making choice of a course.

A special medal, known as the "McAnally Medal," is offered for the best essay, thesis, or poem by a member of the Senior class. Subject for 1905: Ralph Waldo Emerson.

Geology and Mineralogy.

Professor MARBUT.

For Undergraduates.

1. General Geology. This Course is designed to meet the requirements of students in Engineering and such Academic students as intend

to take up any of those occupations which are intimately connected with the materials of the Earth's crust, such as mining, real estate dealing, geological surveying, topographic surveying, forestry or agriculture. The Course deals with the constituents of the Earth's crust, their arrangement and distribution and with the action of the geological processes. The laboratory and field work will include the mapping, geologically, of an area of five square miles in the vicinity of Columbia, and the study of the important minerals and rocks of the Earth's crust.

This Course will take the place of Courses 1 and 3 offered in the Catalogue of 1901-2. Lecture, M., at 10:30; Laboratory, T. Th., 1:30-4.

2. Physiography of North America and Europe. A detailed study of the morphology of the surface of these two continents. It is designed especially for students who intend to specialize in History, Economics or Sociology. T. Th. S., at 8:30.

3a. The Material Resources of North America. This Course is offered especially for students who are doing special work in Economics and will precede Course 4b of that department.

The work of the Course will consist of the study of the nature, distribution, mode of occurrence and abundance of the various constituents of the Earth's crust which constitute the basis of material wealth. M. W. F., at 9:30.

4a. Agricultural Geology. A Course of study designed to illustrate the relation between Agriculture and Geology. Soils, fertilizers (mineral), structural material, water-supply, earth structure, composition, and morphology will all be considered in relation to their origin, development and utilization. *Three times a week.*

5a or 5b. Meteorology. Recitations, lectures, and laboratory work. *Three times a week.*

Facilities will be offered for work in mineralogy and petrology, to students prepared to do such work. It will be almost exclusively laboratory work.

For Undergraduates and Graduates.

8. Field Geology. The detailed study, with the preparation of reports and maps, of geologically important districts. The selection of the area to be studied may be made by the student with the approval of the Professor.

9. Geomorphology. Special field and laboratory study of land form.

Primarily for Graduates.

(See Graduate Circular.)

Course 1 is required of students in Chemical Engineering, and Course 4a of Seniors in Agriculture.

Germanic Languages.

Professor HOFFMAN; Assistant Professor ALMSTEDT; Dr. STEWART.

For Undergraduates.

1. Beginning Course in German. Texts: Thomas' Practical Grammar, Vos' Materials for German Conversation, easy prose reading. Section I, M. W. F., at 8:30; Section II, T. Th. S., at 8:30; Section III, M. W. F., at 10:30. Professor HOFFMAN; Assistant Professor ALMSTEDT and Dr. STEWART.

2. Course in German Reading, Syntax and Composition. *First Semester*: Reading from authors like Storm, Hauff, Baumbach, Freytag; on the basis of the text, drill in grammar (questions and answers in German), German dictation, study of the German Idiom. *Second Semester*: Intensive composition work. This will lead to German theme-writing. Prerequisite, Course 1. Section I, M. W. F., at 9:30; Section II, T. Th. S., at 11:30. Dr. STEWART.

3. Advanced Reading Course. Primarily a course in extensive prose reading. Such works as Heines' Harzreise, Keller's Dietegen, Freytag's Doktor Luther, will serve as the basis of study; parallel reading in German authors; German paraphrases. Though this Course, a natural sequence to Course 2, is mainly one of language discipline, yet during the last month the literary significance of works and authors will receive attention. Prerequisite: Courses 1 and 2. M. W. F., at 11:30. Dr. STEWART.

For Undergraduates and Graduates.

4. Schiller. This Course will consist in the study of Schiller's Jungfrau von Orleans, Maria Stuart, Braut von Messina, Wilhelm Tell, Wallenstein; composition; lectures on Schiller's life and works. Prerequisite, Courses 1, 2, 3. M. W. F., at 9:30. Professor HOFFMAN.

5. Goethe. In the first semester a careful study will be made of Egmont, Goetz von Berlichingen, Hermann und Dorothea; the second semester will be given to the study of Iphigenie, Tasso, Faust. Essays written in German; lectures on other works of Goethe. The Course is conducted in German, and requires, therefore, a knowledge of spoken German. T. Th. S., at 10:30. Assistant Professor ALMSTEDT.

6a. Modern German Poetry. This Course is to comprise a careful study of representative poems with reference to their kind, merits, the time and circumstances under which they came into being, laying also stress on the study of metrics. T. Th. S., at 9:30. Professor HOFFMAN.

6b. Deutsche Aufsätze und Stilübungen. Advanced Course in German theme-writing; discussions of grammatical, syntactical, and stylistic

points. This Course is intended for teachers of German, or for students who propose to become teachers of German; conducted in German. T. Th. S., at 9:30. Professor HOFFMAN.

7a. The Realistic Drama. The plays of Sudermann and Hauptmann will form the basis of study in this Course with references to realistic tendencies in the drama of other Literatures. T. Th. S., at 3. Professor HOFFMAN.

8. Outline Course in German Literature. This Course is intended to give the student a survey of the field of German literature, from its beginning to the present time. Lectures will be given in German. A reading knowledge of the German language is required, work equivalent to Courses 1, 2, 3. T. Th. S., at 9:30. Dr. STEWART.

Primarily for Graduates.

9a. History of German Literature in the time of the Reformation and Renaissance (1500-1750). T. Th. S., at 10:30. Professor HOFFMAN.

9b. History of German Literature from Klopstock through the period of Romanticism. Courses 11a and 12b are to give the student an insight into the development and decline of literary tendencies, forms, ideals, and the influences that helped to develop them or to accelerate their decline. T. Th. S., at 10:30. Professor HOFFMAN.

10. Historical Germanic Grammar and Syntax. This Course is especially adapted to those who are fitting themselves to teach German. A knowledge of Gothic, Old High German, and Middle High German, though very desirable, is not required. Texts: Otto Behägel, *Die deutsche Sprache* (Leipzig-Prag, 1902). M. W. F., at 2. Dr. STEWART.

11b. History of the Nibelungenlied. This Course is to comprise a study of the various theories as to the origin and authorship of the poem, the controversies in regard to it, and its relation to the Nibelungensaga and other sagas. A reading knowledge of Middle High German is required. M. W. F., at 3. Professor HOFFMAN.

12. Middle High German. Walther von der Vogelweide (first semester); Meier Helmbrecht (second semester). Discipline in phonology, morphology, syntax; comparison of mediaeval with modern idiom; a study in lyric and narrative poetry. M. W. F., at 11:30. Assistant Professor ALMSTEDT.

13b. Old High German. A study of Old High German phonology and forms; critical reading of Old High German texts. A knowledge of Gothic should precede this Course. Texts: Braune, *Althochdeutsche Grammatik*² (Halle, 1891); Braune, *Althochdeutsches Lesebuch*⁴ (Halle, 1897). T. Th. S., at 11:30. Assistant Professor ALMSTEDT.

14. Seminary in Old High German. The exercises will lead the student to an appreciation of critical work, besides giving him a broader acquaintance with the language, literature, and culture of the Old High German period; paper. Prerequisite, Course 13b. Texts: Same as in 13b, and MSD.⁸ (Berlin, 1892). *Twice a week.* Assistant Professor ALMSTEDT.

15a. Gothic. A consideration of Gothic phonology, morphology, and syntax in connection with the reading of selections from the Bible translation of Ulfilas. The relationship of Gothic to Indo-European and to later Germanic dialects receives attention in this Course. T. Th. S., at 11:30. Assistant Professor ALMSTEDT.

15b. Old Saxon. The reading of the Heliand with reference to Holthausen, *Altsaechsisches Elementarbuch*. M. W. F., at 10:30. Assistant Professor ALMSTEDT.

Greek.

Professor MANLY; Dr. WESTERMANN.

For Undergraduates.

1. Elementary Greek. This Course is intended for students who have not had an opportunity of studying Greek in the schools where they were prepared, or who have neglected to do so. Thorough drill will be given on forms, and on the fundamental principles of syntax by daily written and oral exercises. Stress will be laid on the early acquisition of vocabulary with a view to taking up as soon as possible the reading of some easy Greek. The text-books used are White's First Greek Book, and Gleason's Gate to the Anabasis, or Macmillan's Greek Reader. M. W. F., at 8:30. Professor MANLY.

2. Xenophon's Anabasis. The first four books of the Anabasis will be read with the necessary study of the historical setting. A thorough review will be given in the syntax, and in the Attic forms as a basis for future work in the department. Goodwin and White's Anabasis; Pearson's Greek Prose Composition; Goodwin's Greek Grammar. T. Th. S., at 10:30. Dr. WESTERMANN.

3. Lysias and Homer. *First Semester:* Selected Orations of Lysias. Together with the translation and the necessary grammatical review, the style of Lysias and his place in Greek oratory will be discussed. Attention will be given to the history of the period and to court procedure at Athens in so far as it is necessary to an understanding of the orations read. Wait's Orations of Lysias; Bridgmann's Parallel Exercises in Lysias. M. W. F., at 9:30. Dr. WESTERMANN.

Second Semester: Homer's Odyssey. The work will include a study of the dialect of Homer, the reading of four or five books, special attention being given to reading metrically, and, in addition, the reading of the rest of the poem in English translation together with discussions of the manners and customs of the Homeric Age. Many photographs and stereopticon slides are used in illustrating the subject. The text-books used are Perrin and Seymour's School Odyssey I-IV, IX-XII, and Jebb's Introduction to Homer. M. W. F., at 9:30. Professor MANLY.

4a. Greek Tragedy. The origin and development of Greek tragedy will be considered, and special study will be made of Euripides. The "Alcestis," "Medea," and "Hippolytus" will be read. This Course should be accompanied by the Course in the Greek Theater (12a). T. Th. S., at 8:30. Professor MANLY.

5b. Thucydides. In the Course Books VI and VII will be read in class, and Thucydides will be discussed as a writer and as a historian. The Sicilian expedition will be carefully investigated. T. Th. S., at 8:30. Dr. WESTERMANN.

6a. History of Greece to the Roman Conquest. This Course deals with the political, social, and intellectual history of the ancient Greeks in a comprehensive manner. Botsford's History of Greece will be used as an outline, but reading will be assigned in the standard histories, and in translations of Herodotus, Thucydides, Xenophon, and other Greek writers. The work will be illustrated by maps, photographs, and stereopticon slides. No knowledge of the Greek language is required for this Course, and it may be counted toward a major or a minor in either Greek or History. T. Th. S., at 9:30. Dr. WESTERMANN.

7. Greek Prose Composition. A thorough review of the forms and of the syntax will be given by means of written exercises. This course is especially adapted to students who expect to teach Greek. S., at 11:30. Professor MANLY.

8a. Demosthenes. This Course will embrace the Olynthiacs and Philippic orations as being most characteristic of the life-struggle of Demosthenes. Combined with this will be a general survey of the development of Greek oratory. The latter part of the semester will be spent upon Greek lyric poetry. T. Th. S., at 8:30. Dr. WESTERMANN.

9b. Greek Literature in English Translation. This Course is especially designed for non-classical students who desire to obtain a knowledge of Greek literature and of its influence on Roman and modern literatures. The work will be based on a text-book with assigned readings in the standard translations of the most important Greek classics. W. F., at 3. Dr. WESTERMANN.

10a. Greek Mythology. The aim of this Course will be to familiarize the student with the myths of Greece as being necessary to a proper appreciation of literature in general. The work will be adapted especially to the needs of students of English and of Greek literature. Gayley's *Classic Myths* will be made the basis of the work, and selected pieces of English literature and of Greek literature in English translation will be read for purposes of illustration. W. F., at 3. Professor MANLY.

11. New Testament and Modern Greek. *First Semester*: New Testament Greek. The purpose of this Course is to consider the language of the New Testament compared with Attic Greek. For this purpose selected portions will be read and considered in class, while other portions will be assigned for private reading. T. Th., at 3. Professor MANLY.

Second Semester: Modern Greek. Stories of modern Greek writers will be read together with daily papers published in Athens. Th. S., at 3. Professor MANLY.

For Graduates and Undergraduates.

12a. The Greek Theater. The origin and development of the Greek Theater will be considered, and disputed points in the structure of the theater, and in the presentation of plays will be discussed. The basis of the work will be Doerpfeld and Reisch's *Das Griechische Theater*. T., at 11:30. Professor MANLY.

13b. Aristophanes. Selected comedies will be read, and the origin and development of comedy will be considered. Attention will also be given to the life of the people as revealed in the plays. T. Th. S., at 8:30. Professor MANLY.

14. Greek Life. The manners and customs of the Ancient Greeks are dealt with in detail, such as early childhood, toys and sports, education, houses, furniture, dress, athletics, marriage, death, burial, etc. The work consists of lectures, assigned readings, and reports, and is illustrated by maps, charts, photographs, and stereopticon views. W. F., at 2. Professor MANLY.

15. Homer. The whole of the *Iliad* and *Odyssey* will be read during the year with especial attention to the antiquities. A special subject will be assigned each student for investigation. Teubner text editions of the poems should be secured in advance. W. F., at 3. Professor MANLY.

16. Herodotus and Thucydides. (a) *First Semester*: Herodotus. Rapid reading with a special study of the Persian Wars, and of the status of Herodotus as an historian. (b) *Second Semester*: Thucydides. A study of the history of the Pentekontaetie (479-431 B. C.), based upon Book I of Thucydides. The other sources upon this period will be read

at sight in class, and their historical value and relation to the account of Thucydides will be discussed. *Two hours a week.* Hours to be arranged. Dr. WESTERMANN.

Primarily for Graduates.

17. Seminary. This work will be conducted jointly by Professor Manly and Dr. Westermann, and will be adapted to the needs of the graduate students in attendance.

History.

Assistant Professor TRENHOLME (*in charge*); Dr. VILES; Mr. ECKHARDT.

For Undergraduates.

1. European History. An introductory Course in which the history of the nations of Europe during the medieval and modern periods, will be dealt with in as broad and comprehensive a manner as is consistent with thoroughness of knowledge and definiteness of outline. The Course will be conducted by means of lectures, assigned readings, oral and written quizzes and examinations. No one text-book will be used throughout the course but students should possess copies of Emerson's "Introduction to the Middle Ages," and Robinson's "History of Western Europe." This Course is required of all students who wish to take other courses in History, Economics, Political Science and Public Law, Sociology, and Pedagogy, and is strongly recommended for those intending to take courses in the History of Art. Section I, M. W. F., at 9:30; Section II, T. Th. S., at 10:30. Assistant Professor TRENHOLME, Dr. VILES, and Mr. ECKHARDT.

The two following Courses in History for Undergraduates are offered by the departments of Greek and Latin:

6a. History of Greece to the Roman Conquest. This Course deals with the political, social, and intellectual history of the ancient Greeks in a general and comprehensive manner. It is given by the Greek Department as Greek 6a and may be counted toward a major or minor in either Greek or History. T. Th. S., at 9:30. Dr. WESTERMANN.

12b. History of Rome to the Fall of the Empire in the West. This Course will treat of the rise and development of the Roman state with special reference to the politics, culture, and society of the Romans. It is given by the Latin Department as Latin 12b and may be counted toward a major or a minor in either Latin or History. T. Th. S., at 9:30. Dr. WESTERMANN.

2. **English History.** A general course dealing with the political and social history of the English people from the earliest times to the present day. While an outline text will be used, the instruction will be in the form of lectures, oral quizzes, weekly papers, and final examinations. Those taking this course should already have some knowledge of general European history. M. W. F., at 10:30. Assistant Professor TRENHOLME.

For Undergraduates and Graduates.

3. **American History to 1783.** A Course on the political and social development of the American colonies to the establishment of their independence. The English origin of American institutions and ideals, the narrative history of the individual colonies, and the growth of spirit of union and independence will be emphasized. Instruction will be in the form of lectures, but a large amount of assigned reading will be required. The knowledge of the students will be tested by weekly papers on assigned topics and reading, and also by written quizzes and examinations. M. W. F., at 11:30. Dr. VILES.

4. **History of the United States.** A Course on the political and narrative history of the United States since 1783, taking up the development of parties and political ideals, foreign relations, territorial expansion, the slavery question, and the general development of the nation. Methods of instruction will be the same as in Course 3. T. Th. S., at 11:30. Dr. VILES.

5. **Modern European History.** The political, social, and intellectual history of Continental Europe from 1648 to the present time with special attention to the French Monarchy under Louis XIV, the rise of Prussia and Russia, the struggle for colonial empire, the causes, events, and results of the French Revolution, the Napoleonic era, and the development of nationality and constitutional government in the nineteenth century. T. Th. S., at 8:30. Mr. ECKHARDT.

7a. **History of Missouri.** After a brief survey of French exploration and colonization in the Mississippi valley, of the Spanish regime, and the early settlements, the Louisiana Purchase and its causes will be taken up in more detail. The primary aim of the course, however, will be to give an account of the development of Missouri since 1803, of the progress of settlement, and of the political and narrative history. Every student will be expected to prepare several reports. This Course must be preceded by a course in United States history. M. W. F., at 2. Dr. VILES.

8b. **History of Modern Colonization.** The purpose of this Course is to trace in outline the extension of the power of the nations of western Europe in other continents. The character and purposes of the colonial policies of these nations, and the narrative history of the more important colo-

nies in America, Asia, and Africa, will be dealt with. Especial attention will be given to the Spanish colonies in the East and West Indies and on the American continents, with reference to their influence on American history and on the territorial development of the United States. M. W. F., at 2. Dr. VILES.

9a. History of England During the Tudor and Stuart Periods. A Course on the political and constitutional history of England from 1485 to 1688. The English Reformation, the character and the machinery of the Tudor despotism, the Puritan movement, particularly in its social and political aspects, the Restoration, and the revival of parliamentary government in 1688, will be the main topics of study. T. Th. S., at 10:30.

10b. Modern England. The political and constitutional history of England since 1688. Especial attention will be given to the rise of parties, to the development of cabinet government, and to Parliamentary Reform in the nineteenth century. No text-book will be used but there will be assigned reading and weekly written texts, besides oral quizzes and discussions. Assistant Professor TRENHOLME.

11a. The Middle Ages. A detailed study of medieval history and institutions. Omitted 1904-5. T. Th. S., at 9:30. Assistant Professor TRENHOLME.

12a. History of France to the Sixteenth Century. This Course deals with French history from the Treaty of Verdun to the reign of Francis I. The leading events of the period and the chief features of constitutional development will be treated in detail, special emphasis being laid on the rise and development of the French Monarchy, and of central institutions. Ability to read French will be desirable but not essential. T. Th. S., at 9:30. Assistant Professor TRENHOLME.

Courses 11a, and 12b, will usually be given in alternate years.

13b. The Age of the Renaissance. A Course dealing with the rise of Italian Humanism and the spread of the Renaissance throughout Europe generally. Special attention will be given to the politics, literature, and art of the period. Students who elect this Course are advised to take also Course 11, in the History of Art. T. Th. S., at 9:30. Omitted 1904-5. Assistant Professor TRENHOLME.

14b. The Era of the Reformation. A study of the causes, events, and consequences of the religious revolutions of the sixteenth century with special attention to the influence of the German Reformation on politics and society. T. Th. S., at 9:30. Assistant Professor TRENHOLME.

Courses 13a, and 14b, will usually be given in alternate years.

15. Topics and Studies in Recent European History. A Course having for its object the investigation of special topics of importance in con-

nection with recent European history. Topics will be selected with reference to the resources of the library, and the Course will be conducted by means of lectures, reports, discussions, and quizzes. Must be preceded by History 5. M. W. F., at 8:30. Mr. ECKHARDT.

16a. Historical Method. A Course of training for advanced students in history on the nature of historical research, the methods to be used, auxiliaries to historical study, use of documents, etc. *Once or twice a week.* Assistant Professor TRENHOLME.

17. The Teaching of History. A course on history from the pedagogical side in which the meaning and value of history, the methods to use in teaching it in schools, aids to its study, and other such topics, will be dealt with in lectures and discussions. Short reports will also be called for from time to time from members of the class. Bourne's "Teaching of History and Civics" (Longman's), and the report of the Committee of Seven on "The Study of History in Schools" (Macmillan Co.), will be the chief reference works used, and students will find it convenient to own one or both of these books. No one will be admitted to the work of this Course who has not had previous work of at least high school grade in Ancient, Medieval and Modern, English and American History. *Once or twice a week.* Assistant Professor TRENHOLME and Dr. VILES.

Primarily for Graduates.

18. English Constitutional and Legal History during the Formative Period. A detailed and careful examination of the formation of the English Constitution and of the growth and development of governmental and legal institutions from the earliest times to the close of the Middle Ages. The more important documents and sources of institutional importance will be read in the class room. T. Th. S., at 2. Assistant Professor TRENHOLME.

19b. American Colonial Institutions. A Course on the development of representative institutions, local government, the judiciary, etc., from their origins in English institutions of the sixteenth and seventeenth centuries to the Revolutionary war. The aim of the Course is to trace the growth of the political institutions and ideals underlying the present government of the United States. Reports will be required from every student from time to time. This course must be preceded by a narrative course on the Colonial Period. T. Th. S., at 9:30. Dr. VILES.

20. Seminary in Missouri History. A Course affording opportunity for investigation in Missouri History. Every student will be expected to investigate from the Courses some topic in the narrative or political history of Missouri, to embody the result of his study in written form, and, at

the option of the instructor, report to the class. In the assignment of topics preference will be given, as far as possible, to the interests and leanings of the individual students. May be studied for 2, 3, or 4 hours. Dr. VILES.

21. Seminary in American History. A research Course in selected topics in American Colonial History and the political and institutional development of the United States. In the assignment of topics an effort will be made to follow the individual preferences of students. May be elected for 2, 3, or 4 hours. Dr. VILES.

22. Seminary in English Political and Institutional History. A course affording opportunity for original research in these fields. The University Library and the Law Library both contain valuable material for research work in English History. May be elected for 2, 3, or 4 hours. Assistant Professor TRENHOLME.

23. Seminary in Medieval History. A research course on some special topic in the history of the Middle Ages, to be selected as far as possible with reference to the wishes of the students and the resources of the library. Some little knowledge of Latin will be requisite, and ability to use French and German will be desirable. May be elected for 2, 3, or 4 hours. Assistant Professor TRENHOLME.

Latin.

†Professor JONES; Acting Assistant Professor STURTEVANT (*in charge*); Assistant Professor JOHNSTON; Dr. WESTERMANN.

For Undergraduates.

1. Sallust, De Bello Iugurthino, and Vergil. Text-books: Greenough and Kittredge's Vergil; Allen and Greenough's Latin Grammar; Guerber's Myths of Greece and Rome. Section I, M. W. F., at 9:30; Section II, T. Th. S., at 9:30; Section III, M. W. F., at 8:30. Assistant Professor JOHNSTON and Dr. WESTERMANN.

2. Latin Prose Composition (Elementary Course). M., at 2. Assistant Professor JOHNSTON.

3. Livy and Horace. Text-books: Lord's Livy; Shorey and Kirkland's Horace; Allen and Greenough's Grammar. Must be preceded by Course 1. Section 1, M. W. F., at 11:30; Section II, T. Th. S., at 11:30. Assistant Professor JOHNSTON.

4. Latin Prose Composition. (Second Course.) Text-book: Gildersleeve and Lodge's Latin Composition. Must be preceded by Course 2. F., at 11:30. Assistant Professor JOHNSTON.

†Absent during session of 1903-4.

5. Roman Public and Private Life. (a) Cicero and Pliny, selected letters; (b) Juvenal and Martial. Must be preceded by Courses 1 and 3. M. W. F., at 8:30. Professor JONES.

7. Rapid Reading. Selections from the historians. Must be preceded by Courses 1 and 3. Th. S., at 8:30. Professor JONES.

11. Roman Literature. Characteristic selections. Must be preceded by Courses 1 and 3. T. Th. S., at 11:30. Assistant Professor JOHNSTON.

12b. History of Rome to the Fall of the Empire in the West. This Course will treat of the rise and development of the Roman state, with special reference to the politics, society, and culture of the Romans. No knowledge of Latin required. This Course may be counted for a major or minor in either Latin or History. T. Th. S., at 9:30. Dr. WESTERMANN.

For Undergraduates and Graduates.

6. Catullus, the Elegiac Poets and Martial. Must be preceded by Courses 1, 3, and 5. T. Th. S., at 8:30. Professor JONES.

8a. General Introduction to the Science of Language. This Course is intended for students of all departments who have linguistic interests. M. W. F., at 10:30. Acting Assistant Professor STURTEVANT.

8b. Comparative Grammar of Greek and Latin. This course will presuppose an elementary knowledge of Greek and Latin. M. W. F., at 10:30. Acting Assistant Professor STURTEVANT.

9. Roman Drama (Plautus and Terence). Must be preceded by Courses 1, 3, and 5. T. Th. S., at 10:30. Assistant Professor JOHNSTON.

10. (a) Tacitus, Annals; (b) Seneca. Must be preceded by Courses 1, and 3. W. F., at 10:30. Dr. WESTERMANN.

13. Latin Prose Composition (Advanced Course). Must be preceded by Courses 2 and 4. T. Th., at 8:30. Assistant Professor JOHNSTON.

17. Elementary Sanskrit. A small amount of classical text will be read, and the grammar will be carefully examined for the purpose of throwing light upon the sounds and inflections of the other Indo-European languages. This course will presuppose an elementary knowledge of Greek and Latin. T. Th. S., at 10:30. Acting Assistant Professor STURTEVANT.

Primarily for Graduates.

15. Seminary. Critical study of a selected author. For the session of 1903-4 Plautus was chosen. Hours to be arranged. Professor JONES.

16. History of the Latin Language. Sounds, inflections, syntax. M. W. F., at 10:30. Professor JONES.

Mathematics.

Professor HEDRICK; Professor DEFOE; Assistant Professor _____;
Mr. AMES; Mr. INGOLD; Mr. ZIEGEL; Miss HATCHER.

No student will be recommended for *advanced credit* in any Course in mathematics without examination, except from the colleges of the Missouri College Union, and from certain Universities outside the State. An examination, which will be set some time in October, will be open to students who show certificate of having satisfactorily completed the work in an accredited school.

No student will be allowed to undertake the work of a Course who has not satisfactorily completed the work of all courses required in preparation, for the course.

For Undergraduates.

[Courses marked (E) are primarily for Engineers.]

1. Trigonometry and Analytic Geometry. This Course is open to Academic students only. Some attention will be paid to Algebra. Texts: Taylor and Puryear, Trigonometry; Ashton, Analytic Geometry. Section I, M. W. F., at 11:30; Section II, T. Th. S., at 11:30. Mr. AMES and Mr. INGOLD.

1 (E). Trigonometry and Analytic Geometry. This Course is primarily for Engineers. It can be taken only together with Course 2a (E). No attention will be paid to Algebra. Texts as above. Section A., T. Th. S., at 11:30; Section B., M. W. F., at 8:30; Section C., M. W. F., at 11:30; Section D., T. Th. S., at 8:30. Mr. AMES; Mr. ZIEGEL; Miss HATCHER.

2. Advanced Algebra. A review of elementary Algebra will be followed by a thorough drill in Quadratic Equations. Then a comprehensive Course will follow, including the elements of the Theory of Equations. Text: Hall and Knight. M. W. F., at 9:30. Mr. AMES.

2a. (E). Advanced Algebra. This Course is primarily for Engineers; but it may be elected by those who have offered 2 units in Algebra for entrance. Much of the matter given in Course 2 is necessarily omitted. Text: Hall and Knight. Section A., M. W. F., at 11:30; Section B., T. Th. S., at 10:30; Section D., T. Th. S., at 11:30. Mr. INGOLD; Miss HATCHER.

3. Plane and Solid Analytic Geometry; Differential and Integral Calculus. The Analytic Geometry of the Freshman year will be completed, including an introduction to Solid Analytic Geometry. The remainder of the Course will cover the whole of the elementary Calculus. After the year 1903-4 this course will begin with Solid Analytic Geometry: Texts: Ashton, Analytic Geometry; Snyder and Hutchinson, Calculus. T. Th. S., at 8:30. Mr. AMES.

4 (E). Plane and Solid Analytic Geometry; Differential and Integral Calculus, with Applications. This course, primarily for Engineers, can be elected by others only under special permission. It will follow Course 3, in somewhat greater detail; and will be followed by short supplementary Courses on Differential Equations, and on the Applications of the Calculus. Texts: Ashton, Analytic Geometry; Snyder and Hutchinson, Calculus; Osborne, Differential Equations. Section I, and Section II, M. T. W. Th. F. S., at 8:30. Professor HEDRICK; Mr. INGOLD.

This Course will count as six hours; an extra amount of work will be assigned on Fridays and the Saturday hour will be used only occasionally.

Courses 3 and 4 (E) are open to those who have had Course 1 (E). But students who elect either of these courses must have offered 2 units of Algebra for entrance, or have taken Course 2 or Course 2a (E).

For Undergraduates and Graduates.

5. Differential and Integral Calculus. This is a completion of the course in Calculus. It is open to those who have had Course 3 or Course 4 (E). After the year 1903-4, it will be given as a Second Course in Calculus, open to those who have had the elementary course. Text: Byerly, Calculus. T. Th. S., at 9:30. Professor HEDRICK; Mr. INGOLD.

6b. Theory of Equations, and Determinants. Recitations, following Burnside and Panton, Theory of Equations. M. W. F., at 9:30. Mr. INGOLD.

7a. Infinite Series and Products. Introduction to the theory of Functions of a Real Variable. Lectures. Reference books: Osgood, Infinite Series; and Ency. der Math. Wiss., IA₃; besides various general treatises. T. Th. S., at 9:30. Mr. AMES.

8b. Advanced Analytic Geometry; Elements of Differential Geometry. Lectures, supplemented by reading and recitations. Beginning with a complementary Course on Analytic Geometry, this Course will cover the elements of modern Differential Geometry. Reference books: Joachimsthal; Niewenglowski; Bianchi; Darboux. T. Th. S., at 10:30. Professor HEDRICK.

9a. Elements of Projective and Synthetic Geometry. Cross Ratios; Projection; Homogeneous Coordinates; Analytic and Synthetic Methods. Lectures, supplemented by reading. Reference books: Reye, Geometrie der Lage; Scott, Modern Geometry; Cremona, Projective Geometry; Clebsch, Geometrie. T. Th., at 10:30. Professor HEDRICK; Mr. INGOLD.

10b. Elements of Differential Equations. Problem Course. Recitations, supplemented by lectures and reading. Text: Forsyth, Differential Equations. T. Th., at 10:30. Mr. INGOLD.

11b. Galois Theory of Substitutions. Groups. Lectures, supplemented by Reading. Reference books: Netto; Dickson; Weber, etc. T. Th. S., at 9:30. Mr. AMES.

16b. Teachers' Course on Elementary Algebra and Geometry. Lectures on alternate weeks on the teaching of elementary Algebra and Geometry in secondary schools. *One hour*, to be arranged. Professor DEFOE (Algebra); Professor HEDRICK (Geometry). Future teachers are expected to take this course. After the year 1903-4, it is planned to give this course as a three-hour course, and to require it for recommendation for teachers of mathematics.

17. Laboratory Work. A mathematical laboratory having been established, students in mathematics are invited to enter upon this work, either in connection with other courses which they are taking, or independently. No credit will be given for this work at present, and the number who can be accommodated this year is limited. The work will be conducted personally. Hours to be arranged. Professor HEDRICK.

Primarily for Graduates.

12. Fourier's Series, and Potential Function. Recitations, supplemented by lectures. Texts: Byerly, Fourier's Series; Pierce, Potential Function. M. W. F., at 9:30. Professor DEFOE.

13. Higher Analysis. This Course will attempt to cover the most important features of mathematical analysis, in a comprehensive but elementary manner. Lectures, supplemented by reading. References: Goursat, Cours d'Analyse; Whittaker, Modern Analysis; Vallee-Poussin; Serret-Bohlmann; Stolz, etc. *Three hours*—hours to be arranged. Professor HEDRICK.

14. Theory of Functions. A general course, covering the elementary parts of the theories of Riemann, Cauchy, and Weierstrass. Theory of Functions of a Complex Variable. References: Burchardt; Durège; Klein; Picard; Borel, etc.; and Ency. der Math. Wiss., II. *Three hours*—hours to be arranged. Professor HEDRICK.

Election of any of the Courses past Course 5, is conditional upon the permission of the instructor in the course, and of the Professor in charge.

After the year 1903-4, Courses in the following topics may be expected: Advanced Differential Geometry; Theory of Groups; Lie's Theory; (Theory of Numbers); (History of Mathematics); (Theory of Probabilities); Analytical Mechanics; Advanced Function Theory; (Differential Equations); Calculus of Variations; and (Foundations of Geometry). Those in parentheses will not be offered in 1904-5.

15. Research Courses. The Professor in charge will conduct, privately, courses in reading and in research, with each individual who pre-

sents himself for the purpose. The lines of work which would be recommended for the year 1903-4, are as follows: Calculus of Variations; Non-Euclidean Geometry; Partial Differential Equations (the Boundary Value Problems, etc.); Theory of Assemblages.

This work may be undertaken only with the very special advice of the Professor in charge.

Mathematical Journal Club. The members of the department and others who desire, will form a club for the examination of current literature. Meetings will be held and reports made each week on a set day. Criticisms and comment will then follow; and any subjects of interest to the members of the Club will be discussed, as occasion arises. M., at 1:30. Room 54.

Philosophy and Experimental Psychology.

PHILOSOPHY.

Professor THILLY.

For Undergraduates.

1. Logic. A study of the fundamental principles of deductive and inductive inference and their practical application, together with an examination of the most general fallacies committed in reasoning. W. F., at 10:30.

2a. Ethics. An examination of the basal concepts of ethics; the nature of ethics; theories of conscience; the psychology of conscience; theories of the highest good; critique of hedonism; energism; egoism and altruism; optimism and pessimism; character and freedom. T. Th. S., at 9:30.

3b. Practical Ethics. Application of the principles underlying conduct. The following topics will be discussed: virtues and vices; self-control; the bodily life; the economic life; the spiritual life; the love of honor; benevolence; justice; charity; veracity; the Greek ideal of conduct; the primitive Christian ideal; the modern ideal. T. Th. S., at 9:30.

4. The Problems of Philosophy. A consideration of the fundamental problems of philosophy, and their solution. The following subjects will be taken up: the nature of philosophy; its relation to the sciences and religion; materialism; dualism; spiritualism; parallelism and monism; atomism; mechanism; evolutionism; theism; pantheism; empiricism; rationalism; scepticism; criticism; realism; idealism. W. F., at 2.

For Undergraduates and Graduates.

5. History of the Development of Thought. The evolution of thought will be traced from the early Greek times down to the present. Particular

stress will be laid on the following movements: Greek and Roman philosophy; the Jewish religion; primitive Christianity; Gnosticism; the Christian Fathers; Scholasticism and Mysticism; the Renaissance and Reformation; the Rationalists; the Empiricists; the Critical philosophy of Kant; the post-Kantian Idealists; Herbart and Schopenhauer; the Positivists; the philosophy of evolution; Lotze, Fechner, and Hartmann. T. Th. S., at 10:30.

6. Advanced Ethics. A critical study of modern ethical theories, with a view to reaching an independent philosophy of conduct. T. Th. S., at 11:30.

Primarily for Graduates.

7. Seminary in the History of Philosophy. Kant's Theory of Knowledge. An examination and criticism of Kant's *Kritik der reinen Vernunft*. This Course is open only to students who have had the necessary preparation in Logic, Psychology, Ethics, and the History of Philosophy, and possess a reading knowledge of German. *Three times a week..* Hours to be arranged.

EXPERIMENTAL PSYCHOLOGY.

Professor MEYER; Dr. OGDEN.

1a. Introduction to Psychology. Text: Royce, *Outlines of Psychology*. This is a brief introductory course, preparing for Course 6b, which should succeed it in the second semester. Students who want Psychology merely as a preparation for work in Education are advised to take these two courses. T. Th. S., at 8:30.

1. General Psychology. This Course is intended to give a general survey of the whole field of Psychology for those who take a more special interest in Psychology either as a part of a liberal education or as a preparation for professional study in Education, Law, or Medicine. The Course covers the following ground: Structure and functions of the sense organs and the nervous system. Sensations; their classification and analysis. Perception of space and time. Movement and action. Attention. Memory and the association of ideas. Illusions. Affection and feeling. Emotion and sentiment. Will. Sleep and dreams. Hypnotism. Insanity. Students who take this course must have some knowledge of physics. Text-books: Royce, *Outlines of Psychology*; Titchener, *Experimental Psychology*, *Student's Manual*. *First Semester*: T. Th., at 2 and one laboratory period at hours to be arranged; *Second Semester*: T. Th. S., at 2.

For Undergraduates and Graduates.

These Courses are open only to students who have had an introductory course in General Psychology.

3b. Differential Psychology. *Three times a week.*

4a, 4b. Aesthetics (Psychological Theory of Art). *First Semester:* General Aesthetics on a Psychological Basis. *Second Semester:* Psychological Theory of Music. Either one of these semester Courses may be taken alone. T. Th. S., at 3.

5a. Advanced Psychology. Discussion of the general principles of scientific investigation. Application of these principles in the criticism of modern psychological theories and problems. *Three times a week.*

6b. Comparative Psychology. Mental development in the child and the race. Experimental methods of child study. Dawning intelligence during animal infancy. Experiments upon the mental processes of animals. Instinct and psychical heredity. Theories of mental evolution. *Three times a week.*

Primarily for Graduates.

7. Psychological Seminary and Advanced Laboratory Work. Critical reading of recent literature. Discussion of special problems and theories. Research work.

Physics.

Assistant Professor STEWART (*in charge*); Mr. PROCTOR; Mr. SUMMERS.

For Undergraduates.

1. General Physics. *Three times a week.* Lectures, W. F., at 10:30 or T. Th., at 10:30; Laboratory, M., 9:30-12, or S., 9:30-12, or any afternoon, 1:30-4. Assistant Professor STEWART; Mr. PROCTOR; Mr. SUMMERS.

2. Experimental Physics. Lectures. *Twice a week.* This Course is offered for the benefit of those who wish to acquire some knowledge of the simpler phenomena of Physics and who do not wish to pursue the subject further. Completion of this Course does not qualify one to take course 4 or any subsequent Course. These lectures constitute a part of Courses 1 and 3, but credit for Course 2 can not subsequently be applied to count on Course 1 or 3. W. F., at 10:30 or T. Th., at 10:30. Assistant Professor STEWART.

3. General Physics. A longer elementary Course. An elementary knowledge of Trigonometry is required. *Six times a week.* Experimental lectures, W. F., at 10:30 or T. Th., at 10:30. Recitations: Section I, T. Th., at 8:30; Section II, W. F., at 8:30; Section III, T. Th., at 11:30; Section IV, W. F., at 11:30. Laboratory, Section I, W. F., at 8:30-11; Section II, M. F., at 1:30-4; Section III, T. Th., 1:30-4; Section IV, 1:30-4. Assistant Professor STEWART; Mr. PROCTOR; Mr. SUMMERS.

4. Electrical Measurements. Lectures and laboratory work. A knowl-

edge of Calculus is required. M. W. F., at 1:30. Assistant Professor STEWART.

12. Heat and Light. *Three times a week.* Open to those who have completed Course 1 or its equivalent. T. Th. S., at 8:30. Mr. PROCTOR.

[13. Electricity and Magnetism. *Three times a week.* Open to those who have completed Course 1 or its equivalent. This course will be offered alternately with Course 12.]

Course 1 is required of Agricultural and Medical students; Course 3 is required of all students in Engineering; Course 4 is required of students in Electrical Engineering.

For Undergraduates and Graduates.

5. Theory of Light. Calculus required. Based on Preston's Theory of Light. Lectures and recitations. *Three times a week.* M. W. F., at 8:30. Assistant Professor STEWART.

6. Theory of Heat. Calculus required. Lectures and recitations. *Three times a week.* Mr. PROCTOR.

9. Advanced work in General Physics. This Course, largely laboratory work, will be adapted to meet the needs and attainments of the individual student. The student may be assigned a definite problem, the literature of which must be studied and the experimental work performed with the care of original research. *Two to six times a week.* Assistant Professor STEWART and Mr. PROCTOR. T. Th. S., at 1:30-4.

Primarily for Graduates.

7. Theory of Electricity and Magnetism. *Three times a week.* M. W. F., at 11:30. Assistant Professor STEWART.

10. Seminary. Critical reading and discussion of current research work in Physics. A colloquium in which all members of the teaching staff of the department and students of sufficient attainments take part. *Once a week.* M., at 4.

11. Research work. Hours to be arranged. Assistant Professor STEWART.

Physiology.

Professor GREENE; Assistant Professor KOCH; Mr. COWGILL; Dr. METZGER.

For Undergraduates.

1. Experimental Physiology. This Course gives a detailed survey of the subject of Animal Physiology. The instruction in the lectures and recitations is based upon a general background of laboratory experience. Sets of apparatus are provided and selected experiments illustrating the facts

and fundamental principles of the subject are performed by the individual student under the personal supervision of the instructors.

Zoology I is required and Courses in Chemistry, Anatomy, Histology, and in German are strongly recommended as preparation for this Course. Zoology I may be counted toward a major or minor in Physiology. Lectures, M. W. F., at 8:30; Laboratory, M. W. F., 9:30-12; to April 1, ten hours' credit.

For Undergraduates and Graduates.

2a. Comparative Physiology. The principles of Physiology illustrated by the simpler forms of life. Lecture, Th., at 9:30; Laboratory, W., 1:30 to 4.

3b. Pharmacology. This Course presents the physiological action of chemicals. The laboratory experiments are distributed to groups of students and each group is required to demonstrate to other members of the Course. Lecture, M. W. F., at 8:30; Laboratory, M. W. F., at 9:30 to 12. April 1, to end of the semester, two hours' credit.

4b. Physiological Chemistry. The Chemistry of the cell, from the point of view of energetics and the fundamental laws of physical chemistry, together with the chemical structure of all the cell constituents as far as known. One Lecture and two Laboratory periods a week. Hours to be arranged.

5. Advanced Physiology. Special Course open to students who have completed Course 2. Hours to be arranged.

6. Advanced Pharmacology. Special work open to students who have completed Course 3b. Hours to be arranged.

7. Advanced Physiological Chemistry. Special work open to students who have completed Course 4. Hours to be arranged.

8. Physiological Seminary and Journal Club. T., at 9:30.

For Graduates.

9. Investigation. Opportunity is here offered for research into questions of current interest in physiology, pharmacology, and physiological chemistry. Problems will be assigned according to the individual needs of the student. Hours to be arranged.

Political Science and Public Law.

Professor LOEB.

For Undergraduates.

1. Political Institutions. An introduction to the study of political science and public law. A consideration of the nature, origin and develop-

ment of political institutions followed by a comparative study of the structure and working of the important modern governments. This Course is required of all Academic students who wish to elect other courses in Political Science or Public Law. Must be preceded by History 1. T. Th. S., at 11:30.

For Undergraduates and Graduates.

3b. Elements of Jurisprudence. An introduction to the study of law. The Course treats of the nature, sources and classification of law, and includes a consideration of the fundamental concepts of private law. The nature and use of legal authorities will be discussed. W. F., at 2.

4. Comparative Constitutional Law. A comparative study of the constitutional law of the principal states of Europe and America. Particular attention will be given to the field of individual liberty defined in the Constitution of the United States, and interpreted in the decisions of the Supreme Court. T. Th. S., at 3.

Primarily for Graduates.

5. Comparative Administrative Law. A study of the nature and functions of the administration and the control exercised over it in the United States, England, France, and Germany. Governmental structure will be studied in detail and local government will be considered with special reference to recent development. Given in 1904-5 and alternate years thereafter. W. F., at 3.

6a. Municipal Government. A sketch of the history of municipalities followed by a study of the organization and functions of cities in Europe and the United States. Given in 1903-4 and alternate years thereafter. *Three times a week.* Hours to be arranged.

7b. The Law of Taxation. A study of the legal rules regulating taxation in the central and commonwealth governments of the United States. Should be preceded or accompanied by Economics 2. Given in 1903-4 and alternate years thereafter. *Three times a week.* Hours to be arranged.

8a. The Government of Missouri. A study of the Constitutional development of the state from the Louisiana Purchase to the present time, followed by a consideration of the organization and functions of the institutions of the central and local governments. *Twice a week.* Hours to be arranged.

10. Seminary in Administration. A Course for the investigation of administrative organization and functions. In 1904-5 topics in Missouri administration will be studied from the sources. May be elected for 2, 3, or 4 hours.

Romance Languages.

Professor WEEKS; Miss WILLIAMS; Miss DOUGLAS; Assistant Professor

FRENCH.

For Undergraduates.

1. Elementary Course. French Reading and Composition. Frazer and Squire's French Grammar, Douay's Elementary French Reader. Section I, T. Th. S., at 8:30; Section II, M. W. F., at 10:30; Section III, T. Th. S., at 9:30. Miss WILLIAMS and Miss DOUGLAS.

2. Modern Fiction and Plays. Composition, sight-reading. This Course is meant for the second year study of French. Much ground is covered, and considerable attention is paid to pronunciation. Several of the Books read are: One of Erckmann—Chatrian's better stories; Lamartine's Jeanne d'Arc; Bornier's La Fille de Roland; Sandeau's Mademoiselle de la Seigliere; Augier's Le Fils de Giboyer; Theuriet's L'Abbe Daniel; Rostand's La Princess Lointaine. M. W. F., at 9:30. Miss WILLIAMS.

4. A Course parallel to the second year's work under 2 is given, intended especially for training in rapid reading and composition. A number of standard novels and plays are read with reports and discussions. M. W. F., at 10:30. Professor WEEKS.

6. The French Drama. Reading, reports, and lectures. In this Course the development of the drama and theater in France will be studied systematically. About fifteen representative plays, selected from the 17th, 18th, and 19th centuries, will be analyzed and discussed. The instructor will feel free to devote a portion of the year, if desirable, to some other branch of French literature. M. W. F., at 9:30. Miss DOUGLAS.

For Undergraduates and Graduates.

8. General View of French Literature. A great deal of ground is covered in this Course; much reading aloud is done, very little translation. The first semester is devoted to the 17th and 18th centuries, the second to the 19th. Several plays of each of the great classical dramatists are read, together with masterpieces in other branches of literature. T. Th. S., at 9:30. Miss WILLIAMS.

9. French Literature in the Eighteenth Century. Lectures, readings, and reports. The first semester is occupied with the study of Voltaire and his contemporaries, chiefly the former—his life and character, his ideas and aims, and the nature and extent of his influence in France and abroad. The second semester treats of the drama of the period, tracing its evolution from Racine to the death of Beaumarchais. M. W. F., at 10:30. Assistant Professor ———.

10. The Seventeenth Century. An attempt is made in this Course to obtain a general view of the classic period of French Literature. Especial attention is paid to the development of French prose. There is considerable outside reading, with written reports from time to time. Selections from nearly all the great writers of the seventeenth century will be read. T. Th. S., at 10:30. Professor WEEKS.

Courses 9 and 10 are given in alternate years.

Primarily for Graduates.

11. The Sixteenth Century. Lectures, readings, and reports. The Course includes the period between the close of the literature of the Middle Ages and the first years of the seventeenth century, with especial attention to the intellectual forces set in motion by the Renaissance and the Reformation in France. The first semester will be given to a general survey of the period in question. The second semester will deal chiefly with Montaigne and Rabelais, making a careful study of selected portions of their works, and of the influence and significance of their thought. T. Th. S., at 2. Assistant Professor _____.

12. Old French. Paris and Langlois' Chrestomathie. A study will be made of the newly-discovered Chancon de Willame and the related poems during the first semester, and of the legend of Tristan in the second semester. The Course is conducted entirely in French. Although this Course is intended for Graduates, Seniors who have taken with high credit the preceding work and who are making a specialty of Romance Languages, are occasionally allowed to elect it, since it can be pursued advantageously for two successive years. M. W. F., at 9:30. Professor WEEKS.

14b. Provençal. A study of the language and literature of Provence. The text-book used will be Appel's *Provençalische Chrestomathie*, Leipzig, 1902. T. Th. S., at 2. Professor WEEKS.

ITALIAN.

For Undergraduates.

15. Beginning Course. Grammar, reading, composition. Open only to those who have taken Course 1 or its equivalent. The object of the Course is to obtain an easy reading knowledge of modern Italian, and to this end much ground is covered. Careful attention is paid to pronunciation, and as soon as possible students begin to read aloud without translation. The books used are: Grandgent's Grammar, Bowen's Reader, and specimens of modern prose in fiction and drama. T. Th. S., at 11:30. Miss WILLIAMS.

For Undergraduates and Graduates.

16. Advanced Course. The Sixteenth Century and Dante. Open to Seniors and Graduates who have had at least two years of French, and who possess a fluent reading knowledge of modern Italian. The purpose of this Course is to take as comprehensive a view as is practicable of the classical literature of Italy. The work studied will be mostly verse, but outside prose reading will be expected. During the first semester Machiavelli's *Il Principe*, Tasso's *Gerusalemme Liberata*, and portions of Ariosto's *Orlando Furioso* will be read. The second semester will be devoted mainly to the study of Dante and the *Divina Commedia*. T. Th. S., at 9:30. Miss WILLIAMS.

SPANISH.

For Undergraduates.

18. Beginning Course. This Course is parallel to the corresponding one in Italian, and, as far as possible, the same methods are employed. Emphasis is laid on a careful knowledge of the leading facts of the language. The books used are Loiseaux's Grammar, and Fontaine's *Doce Cuentos Escogidos* (W. R. Jenkins), followed by specimens of modern prose in fiction and drama. T. Th. S., at 11:30. Miss WILLIAMS.

19. Advanced Course. The Nineteenth Century and Cervantes. Reading, composition, lectures. The course deals chiefly with prose selected with the twofold aim of promoting acquaintance with some of the most notable works of Spanish fiction, and of furthering the better acquisition of the language as a means of expression. The first semester will be taken up with selected works of representative authors of the nineteenth century, as Cabalero, Alarcon, Valera, Galdos; while the second semester will be devoted chiefly to Cervantes, *Don Quijote*, and *Novelas Ejemplares*. T. Th. S., at 10:30. Assistant Professor ———.

Freshmen are not allowed to elect Spanish.

PHONETICS.

Primarily for Graduates.

20a. General Introduction to Philology. An effort is made in this Course to study the phenomena of speech sounds from a physiological standpoint. The University has established a laboratory of Experimental Phonetics for the more accurate study of the living speech. M. W. F., at 2. Professor WEEKS.

21. Seminary. An opportunity is here given for advanced work in special subjects. *Twice a week.*

Sociology.

Professor ELLWOOD.

For Undergraduates.

1. Elementary Sociology. Lectures on certain fundamental social problems, as e. g., the origin and evolution of the family, the growth of population, immigration, the race problem, the growth of cities, the liquor problem, the housing problem, the nature of society. Text-book work and study of special subjects for investigation. M. W. F., at 9:30.

2. The Social Teachings of Jesus. A series of lectures on the relation of Christianity to present social conditions and theories. Assigned reading. If credit is desired this Course must be preceded or accompanied by Course 1. T., at 2.

For Undergraduates and Graduates.

3a. Modern Philanthropy. A study of the nature and origin of the dependent and defective classes, the principles and methods of relief, the management of state institutions, etc. Reports by the class on special subjects for investigation. T. Th. S., at 9:30.

4b. Criminal Sociology. A study of the causes, nature, and treatment of crime; the principles of criminal anthropology, criminal jurisprudence, and penology. Lectures and selected text-books. T. Th. S., at 9:30.

5. Advanced Sociology. A critical study of sociological theory. Lectures, discussions, and reports on special investigations by the class. T. Th. S., at 11:30.

Primarily for Graduates.

6a. Ethnology. A study of the evolution and relations of the different races of mankind. M. W. F., at 10:30.

7b. Race Psychology. A study of the comparative psychology of races as shown in their customs, institutions, and social organization. M. W. F., at 10:30.

8a. Psychological Sociology. A critical study of the writings of Tarde, Le Bon, and Baldwin, with some attempt to make use of psychological principles in the interpretation of social phenomena. M. W. F., at 2.

9b. History of Social Philosophy. Lectures on the development of social thought from Aristotle to the present, especially since the time of Comte. Assigned reading. M. W. F., at 2.

10. Sociology of Religion. A study of religious phenomena from the sociological standpoint. Not given in 1904-5.

enter advanced heavy gymnastics or special events in gymnastics or athletics until they have attained the required grade tests. All candidates for athletic teams, class as well as University, not taking regular work, are required to register with the Director and pass the grade tests.

For their value in student life and to those men physically fit to participate in them, competitive athletics and intercollegiate contests are encouraged. Intercollegiate contests are considered a part of student body life and a student enterprise but in order that such contests may be in accordance with good training principles and the broader educational aims of the institution, they are placed by the Board of Curators of the University under department supervision and control. All transient coaches are under the immediate supervision of the Director and must instruct through a coaching board composed of faculty, alumni, and students.

There is no gymnasium fee, but regulation suits are required for both men and women. Prospective students will find it less expensive and more satisfactory to secure their suits in Columbia according to directions given at the opening of the year.

1. Practical Training. All the various classes of exercises offered by the department are organized under the head of this Course. The work comprises corrective and light gymnastics, besides gymnastic games and other recreative exercises. For men, instruction in fencing, boxing, and wrestling, and training in outdoor games and sports are given. *Three times a week.* One hour's credit a semester for four semesters. Professor HETHERINGTON; Miss MANN; Mr. TUTTLE.

2a. Principles of Physical Training. A short Course of general lectures to be taken with Course 1 during the first year's work. W., at 1:30 or hour to be arranged. Professor HETHERINGTON.

3. Technique of Athletics. A Course of lectures by the head of the Coaching Board under the direction of Professor Hetherington on the theory, technique, and points of skill in different athletic sports. All candidates for teams are expected to attend the lectures on the technique of their events. Hours to be arranged. No credit allowed.

III. MISSOURI TEACHERS COLLEGE.

(A Department of the University of Missouri.)

FACULTY.

RICHARD HENRY JESSE, LL. D.,

President.

ALBERT ROSS HILL, A. B., Ph. D.,

Professor of Educational Psychology and Dean of the Faculty.

JOHN CHARLES WHITTEN, B. S., Ph. D.,

Professor of Horticulture.

FREDERICK BLACKMAR MUMFORD, B. S., M. S.,

Professor of Agriculture.

JOHN RUTLEDGE SCOTT, A. B.,

Professor of Elocution.

CURTIS FLETCHER MARBUT, B. S., A. M.,

Professor of Physical Geography.

MAX MEYER, Ph. D.,

Professor of Experimental Psychology.

CLARK WILSON HETHERINGTON, A. B.,

Professor of Physical Education.

LUTHER MARION DEFOE, A. B.,

Professor of Mathematics.

BENJAMIN MINGE DUGGAR, M. S., A. M., Ph. D.,

Professor of Botany.

Professor of Theory and Practice of Teaching.

Professor of History of Education.

HERMANN BENJAMIN ALMSTEDT, B. L., Ph. D.,
Assistant Professor of German.

OSCAR MILTON STEWART, Ph. B., Ph. D.,
Assistant Professor of Physics.

WILLIAM BAIRD ELKIN, A. B., Ph. D.,
Acting Assistant Professor of Theory and Practice of Teaching.

Assistant Professor of English.

JOHN SITES ANKENNEY, JR.,
Instructor in Freehand Drawing.

WILLIAM HUTCHINSON COOK,
Instructor in Manual Training.

WILLIAM LINN WESTERMANN, A. B., Ph. D.,
Instructor in the History and Literature of Greece and Rome.

Lecturer on Music.

For the present instruction in subjects other than those represented by the above Faculty is not provided by the Teachers College, but students of the Teachers College may elect such subjects from the Academic Department or the College of Agriculture, in accordance with the regulations of this Faculty.

Requirements for Admission:

The requirements for admission to this Department of the University are the same as those of the Academic Department. See page 43.

Degrees and Certificates:

The Teachers College confers only one undergraduate degree, that of Bachelor of Science (B. S.) in Education. It also confers Teachers' Certificates upon some who may not care to take this degree, e. g., graduates in Arts of this University or of other institutions of similar rank. For requirements see below.

Requirements for Graduation With Degree:

In order to secure the degree of Bachelor of Science (B. S.) in Education the student must fulfill the following conditions:

1. He must be regularly admitted to the Department. See page 43.
2. He must complete work in Education to the amount of twenty-four (24) hours, including Practice Teaching (3 to 9 hours credit) and Educational Psychology.
3. He must complete a course in General Psychology with at least three (3) hours credit. This Course must be completed before the junior year.
Additional work in Psychology, or work in Ethics or in Sociology, may be required by the Instructor in charge of any Course in Education.
4. All Freshmen in the Teachers College must take English 1.
Additional work in English may be required of any student who, in the judgment of his instructors, does not have a reasonably good command of the English language.
5. Other specific requirements depend upon the particular form of Teacher's Certificate which the student seeks. See below.
6. The total requirement for graduation is one hundred and twenty (120) hours.

Elective Work:

All elections must be made in accordance with the advice and approval of the Dean. In general any study in the University which will tend to make the candidate for the degree a more efficient teacher will be regarded as legitimate work for him to elect, but he will not be permitted to elect studies at random. No student will be permitted, except for good reasons and with the consent of the Dean, to elect a course under any other Faculty of the University when a substantially equivalent course is offered by the Teachers College.

No student may take more than 16 nor less than 12 hours a week except by special permission of the Dean.

Certificates to teach for life or for two years in the State of Missouri are conferred upon those who have been regularly admitted to the Teachers College and have fulfilled the following special requirements:

Special Requirements for Life Certificate to Teach in Secondary Schools:

1. Candidates for this Certificate must meet the requirements for the Bachelor's degree from this institution or one of similar standing.
2. They must complete work in Education and Psychology equivalent to that required for the degree of Bachelor of Science (B. S.) in Education from this institution.

3. They must complete at least eighteen (18) hours in each subject in which the Certificate is sought, unless excused for good reasons by the instructor in charge of the subject, with the consent of the Dean.

Candidates for this Certificate must also take the Teachers' Course in each subject in which the Certificate is sought, unless excused for good reasons by the Dean; but as much as six (6) hours of the credit thus gained may be counted as Education in reckoning credits toward the Certificate or the degree.

The above Certificate may be taken not only in any of the standard subjects of high school instruction but also in such subjects as Agriculture, Horticulture, Manual Training, Physical Training, Physical Geography, and Physiology.

Special Requirements for Life Certificate to Teach in Elementary Schools:

1. Candidates for this Certificate must complete work in Education and Psychology equivalent to the requirement for the degree of Bachelor of Science (B. S.) in Education from this institution.

2. They must complete eighteen (18) hours in Agriculture and Horticulture, Freehand Drawing, Manual Training, and Music.

3. They must complete enough work to make a total of sixty (60) hours of college credit.

Requirements for Two Years' Certificates:

Upon the completion of not less than three-fourths of the total work required for any of the certificates above mentioned, including at least one-half of the requirement in Education and Psychology, that Certificate may be granted to a teacher for a period of two years. Such Certificate will not be renewed, but if in the course of two years the remaining requirements are made up the Life Certificate may then be conferred.

Special Students:

All students who are candidates for a Teacher's Certificate or for the degree are counted regular students of the Teachers College. In addition to these, persons of proper qualifications are admitted who wish, without reference to the degree or a certificate, to make a serious study of some special phase of Education or to gain a knowledge of fields they have hitherto neglected, e. g., Freehand Drawing, Manual Training, etc.

Such students are subject to the general rules of the University regarding special students. See page 52.

They will not be given a certificate but a statement will be furnished them setting forth the nature and amount of work done while in attendance at the Teachers College.

Graduate Work:

For teachers of experience who already hold the Bachelor's degree from an institution of good standing opportunities are provided to carry on graduate work in Education leading to the degrees of Master of Arts (A. M.) and Doctor of Philosophy (Ph. D.). See Courses in Detail, below, and also page 77.

Courses for Teachers in the Summer Session:

All of the courses offered in the Summer Session of the University are arranged with a view to the needs of teachers, and special courses in Education, Manual Training, Nature Study, etc., are given a prominent place. The Summer Session is practically a session of the Teachers College.

In the summer of 1904 courses will be offered in the following subjects:

Agriculture, Botany, Chemistry, Education, English, Freehand Drawing, French, German, Greek, History, Horticulture, Latin, Manual Training, Mathematics, Music, Physical Geography, Physics and Zoology. The session will open June 2 and continue till August 2.

Full information regarding details may be had upon application to A. R. Hill, Director, Columbia, Missouri.

COURSES IN DETAIL.

(Courses designated by a number with the letter *a* attached, thus: 1a, 3a, are given the first semester only. Those designated by a number with the letter *b* attached, thus: 2b, 4b, are given the second semester only. Those designated merely by a number are continuous courses and are given both semesters.)

Education.

Professor HILL; Professor _____; Professor _____.

For Undergraduates.

1a. Introduction to the Study of Education. This Course aims quite as much to train the student to proper habits and methods of study as to introduce him to the problems of education. The following are among the topics included in the Course: the art of study; the meaning and aim of education; the selection of a course of study, etc. This Course is intended primarily for Freshmen in the Teachers College, but Freshmen and Sophomores in Arts will also be permitted to take it, subject to the

regulations of the Academic Faculty. The Course is not open to Junior and Seniors. M. W. F., at 10:30. Professor HILL.

2b. History of Education. An elementary course intended for teachers in the elementary schools. M. W. F., at 10:30. Professor _____.

3a. School Management. A study of the main problems in school management from the standpoint of the teacher in the grades; school incentives, punishment, school hygiene, etc. *Three times a week.* Hours to be arranged. Professor _____.

4b. Educational Psychology (for teachers in elementary schools). This Course is designed to present the main facts concerning the nature and development of the mind during childhood, with special reference to the meaning of these facts to the teacher. It aims to prepare students for class-room work and for the courses in Theory and Practice of Teaching and Elementary Education. It presupposes Experimental Psychology 1a, or its equivalent. *Three times a week.* Hours to be arranged. Professor HILL.

5a. Theory and Practice of Teaching. A general course which aims to formulate the "method of the recitation" and to illustrate as fully as time will permit its application to subjects in all grades of school work. *Three times a week.* Hours to be arranged. Professor _____.

6b. Elementary Education. A more detailed and critical study of the methods of teaching the subjects of the primary and grammar grades; correlation of studies in the grades; the curriculum of the elementary school; etc. *Three times a week.* Hours to be arranged. Professor _____.

For Undergraduates and Graduates.

10a. Educational Psychology (for high school teachers and superintendents). This Course may be taken after Course 4b or independently of it. More scientific methods of study will be followed than in 4b, and no student will be permitted to take it before the Junior year. It presupposes Courses 1a and 6b in Experimental Psychology or their equivalent. *Three times a week.* Hours to be arranged. Professor HILL.

11b. Principles of Education. This Course aims to develop the fundamental principles upon which educational procedure should rest, through a study of the biological, ethical, psychological, sociological, and religious aspects of education. It presupposes Experimental Psychology 1a and a general course in either Ethics or Sociology. *Three times a week.* Hours to be arranged. Professor HILL.

12a. Educational Classics. A more advanced course in the history of education than 2b. A critical study of a few great classics in Education will be made a prominent feature of the Course. It presupposes European History 1 and the general course in Theory and Practice of Teaching or their equivalents. *Three times a week.* Hours to be arranged. Professor _____.

13b. Secondary Education. The history, curriculum, organization and administration of secondary education in the United States. The Course is intended primarily for those who are preparing to become high school teachers and principals. *Three times a week.* Hours to be arranged. Professor _____.

14a. School Systems. A comparative study of the school systems of Canada, England, France, Germany, and the United States. *Three times a week.* Hours to be arranged. Professor _____.

15b. School Supervision. The leading topics in school administration are discussed, such as: construction, heating, ventilation, lighting, sanitation, and equipment of school buildings; play-grounds; relation of superintendent to boards, teachers, pupils, and citizens; grading, promotions, etc. *Three times a week.* Hours to be arranged. Professor _____.

18a, 18b. Practice Teaching for Elementary Teachers. Hours and credit must be arranged with the instructor before registration. Professor _____.

19a, 19b. Practice Teaching for High School Teachers. Hours and credit must be arranged with the instructor before registration. Professor _____.

For courses in the teaching of Botany, German, etc., see special announcements of those departments.

For Graduates.

20. Seminary in Educational Psychology. The special problems selected for study will depend upon the interests of those taking the Course, the aim being to guide advanced students of Education in constructive work in the theory of education through a detailed study of a few aspects of mental development. The Course is open only to students who have had considerable training in both Education and Psychology. *Twice a week.* Hours to be arranged. Professor HILL.

21. Seminary in the History of Education. A critical investigation of topics in connection with the thesis work for the Graduate Degrees. *Twice a week.* Hours to be arranged. Professor _____.

22. Seminary in School Administration. A research Course in school organization and administration with special reference to city school sys-

tems. The Course is open only to teachers of considerable experience in school supervision who are otherwise qualified to undertake research work. *Twice a week.* Hours to be arranged. Professor _____.

Agriculture.

Professor MUMFORD.

1a. Soils and Plant Studies, with reference to Agriculture. This Course will aim to give a clear general knowledge of the principles of Agriculture. The character of the work is adapted to those who are preparing to teach in the elementary schools. *Three times a week.* Hours to be arranged.

1. Agronomy. A fuller study of soils, farm crops, and the principles of plant production than is offered in Course 1a, intended for high school teachers but open to any who are prepared to pursue the subject more scientifically and for a longer time. M. W. F., at 8:30.

For other courses in Agriculture that may be elected by students in the Teachers College, see College of Agriculture.

Botany.

Professor DUGGAR.

1a. General Botany. The first half of the semester is devoted to a study of cell structure and the fundamental principles of plant physiology. The student is taught to set up experiments and to keep records of observations on plant activities. In the second half of the semester a series of cryptogams is studied from the point of view of development. Lecture, T., at 10:30; Laboratory, Section I, T. Th., 1:30-4; Section II, W. F., 1:30-4.

2b. General Botany. This Course continues the study of the plant series begun in 1a, dealing with the embryology and anatomy of certain gymnosperms and angiosperms, concluding with some general work in ecology. Lecture, T., at 10:30; Laboratory, Section I, T. Th., 1:30-4; Section II, W. F., 1:30-4.

The foundation work in Botany is offered in Courses 1a and 2b. These Courses or their equivalents are prerequisite for all other regular work in the subject, and these at least should be taken by students who may teach in any branch of biological science.

15a. Teachers' Conference. A course of lectures upon certain fundamental topics and upon available botanical materials and methods. *Twice a week.* Hours to be arranged.

The above Course is offered primarily for students in the Teachers College, and it is only in this Course that general methods covering the whole field of botanical work which may be taught in high schools or colleges will be systematically discussed and reported upon.

For other courses in Botany which may be elected by students in the Teachers College, see Academic Department.

Elocution.

Professor SCOTT.

1. *First Semester:* Foundation theory and practice of vocal culture and expression. *Second Semester:* Principles of bearing, walk and gesture; the practice of short oratorical extracts, with the study of the *rationale* of appropriate utterance and action. *Three times a week.* Text-book: Raymond's Orator's Manual.

2. Advanced Work. The interpretative study of plays, scenes, poems, and imaginative literature generally. This Course must be preceded by Course 1. *Three times a week.*

3. Teachers' Course. This Course comprises: (a) The criteria of vocal expression—time, pitch, quality, and force—with copious examples; (b) The method of teaching children to read. Text-book: S. H. Clark's "How to Teach Reading in the Public Schools." W., at 3.

English.

Mr. _____.

1. English Composition and Rhetoric. Detailed study and practice in Construction and the kinds of Composition. Lectures, exercises and themes. Class-room study of literature illustrative of the different kinds of Composition. *Three times a week.*

2. English Literature. General View. *Three times a week.*

3. The Teaching of English. Lectures and discussion on the teaching of English in the public schools. *Twice a week.*

For other courses in English open to students in the Teachers College, see Academic Department.

Experimental Psychology.

Professor MEYER.

1a. Introduction to Psychology. Text: Royce, Outlines of Psychology. This is a brief introductory course, preparing for Course 6b, which

should succeed it in the second semester. Students who want Psychology merely as a preparation for work in Education are advised to take these two courses. T. Th. S., at 8:30.

1. General Psychology. This Course is intended to give a general survey of the whole field of Psychology for those who take a more special interest in Psychology either as a part of a liberal education or as a preparation for professional study in Education, Law, or Medicine. The Course covers the following ground: Structure and functions of the sense organs and the nervous system. Sensations; their classification and analysis. Perception of space and time. Movement and action. Attention. Memory and the association of ideas. Illusions. Affection and feeling. Emotion and sentiment. Will. Sleep and dreams. Hypnotism. Insanity. Students who take this Course must have some knowledge of physics. Text-books: Royce, Outlines of Psychology; Titchener, Experimental Psychology, Student's Manual. *First semester*: T. Th., at 2 and one laboratory period at hours to be arranged; *second semester*: T. Th. S., at 2.

6b. Comparative Psychology. Mental development in the child and the race. Experimental methods of child study. Dawning intelligence during animal infancy. Experiments upon the mental processes of animals. Instinct and physical heredity. Theories of mental evolution. *Three times a week.*

Freehand Drawing.

MR. ANKENY.

1. Normal. Drawing from the standpoint of the child. M. W. F., at 8:30.

2. Representation. An introductory Course giving a general survey of delineation. The principles and theories are presented in lectures with collateral reading. Experimental practice in drawing with pencil, pen and ink, wash, and in painting with water colors. T. Th. S., at 8:30.

During the second semester the experimental practice in Course 2 is differentiated somewhat to suit the needs of the individual student. Those taking this Course as a direct aid to scientific work, to the history of art or other University courses, should so inform the instructor.

3. Design. The theory of design; design as fundamental to the fine arts (architecture, painting, sculpture) and crafts; the principles and bases; evolution in design. Lectures, reading, study of examples, original exercises. This Course is recommended in addition to Course 2, as an introduction to advanced courses. T. Th. S., at 9:30.

5. Construction. Consideration of past and present usage in the artistic construction of the human figure. Lectures, study of examples and

reading. Drawing and modeling from casts and life. Lecture, M., at 2; Laboratory, W. F., 1:30-4.

7. Painting. Style, theory and method of various schools and movements. Lectures, study of examples, and reading. Experimental practice in painting from still life, landscape, and life. Lecture, M., at 3; Laboratory, W. F., 1:30-4.

German.

Assistant Professor ALMSTEDT.

1. Beginning Course in German. Texts: Thomas' Practical German Grammar, Vos' Materials for German Conversation, easy prose reading. M. W. F., at 10:30.

7b. The Teaching of German. A course of lectures and discussions on the teaching of German in secondary schools; consideration of text-books, grammars, readers, etc.; consideration of difficulties, such as occur in pronunciation, syntax, idiom. *Two hours.* To be arranged.

For other Courses in German open to students in the Teachers College, see Academic Department.

Greek.

Dr. WESTERMANN.

2. Xenophon's Anabasis. The first four books of the Anabasis will be read with the necessary study of the historical setting. A thorough review will be given in the syntax, and in the Attic forms as a basis for future work in the department. Goodwin and White's Anabasis; Pearson's Greek Prose Composition; Goodwin's Greek Grammar. T. Th. S., at 10:30.

6a. History of Greece to the Roman Conquest. This Course deals with the political, social, and intellectual history of the ancient Greeks in a comprehensive manner. Botsford's History of Greece will be used as an outline, but reading will be assigned in the standard histories, and in translations of Herodotus, Thucydides, Xenophon, and other Greek writers. The work will be illustrated by maps, photographs, and stereopticon slides. No knowledge of the Greek language is required for this Course. T. Th. S., at 9:30.

8a. The Teaching of Greek and Roman History. Lectures and discussions on the teaching of the history of Greece and Rome in secondary schools; text-books, reference works, etc. *One hour.* To be arranged.

10b. Greek Literature in English Translation. This Course is especially designed for non-classical students who desire to obtain a knowledge

of Greek literature and of its influence on Roman and modern literatures. The work will be based on a text-book with assigned readings in the standard translations of the most important Greek classics. W. F., at 3.

For other courses in Greek open to students in the Teachers College, see Academic Department.

Horticulture.

Professor WHITTEN.

1b. Cultivated plants; how they grow under culture, their relation to their environment, and common methods of propagating and managing plants; the materials for a school garden and how to use them. Lectures and laboratory. This Course is intended for those who are preparing to teach in elementary schools and who may not have time for the longer courses offered by the department. *Three times a week.* Hours to be arranged.

1a and 2b. These two Courses taken together constitute a year's work in which the topics mentioned in 1b are given fuller and more scientific treatment. They can be taken after 1b or independently of it, and are designed to meet the needs of those who are preparing to teach in any branch of biological science. M. W. F., at 8:30.

5a. The Evolution of Cultivated Plants. Lectures and assigned readings. A study of organic evolution as applied to the modifications of plants, particularly those in cultivation. *Three times a week.* Hours to be arranged.

For other courses in Horticulture open to students in the Teachers College, see College of Agriculture.

Latin.

Dr. WESTERMANN.

1. Vergil and Cicero, *De Amicitia* and *De Senectute*, with sight reading. M. W. F., at 8:30.

2b. The Teaching of Latin and Greek. Lectures and discussions on the aims and methods of instruction in Latin and Greek in secondary schools. *Two hours.* To be arranged.

12b. History of Rome to the Fall of the Empire in the West. This Course will treat of the rise and development of the Roman state, with special reference to the politics, society and culture of the Romans. No knowledge of Latin required. T. Th. S., at 9:30.

For other courses in Latin open to students in the Teachers College, see Academic Department.

Manual Training.

Mr. Cook.

The equipment for instruction in Manual Training is very complete, combining much that is used in the Engineering shops with such special equipment as the work itself demands. Among special pieces may be mentioned the China Kiln for the firing of Pottery, the Potters' Wheel, the tools for the work in elementary forging, and the special Sloyd Benches.

4. Manual Training for Kindergarten and Primary Teachers. This Course consists of a system of handwork within the reach of any city or rural school, and deals with those forms that are most practicable and significant in the Kindergarten and the lower grades of the elementary school. The lines of work studied include basketry in simple form; clay-modelling; construction in paper and cardboard; knotting, plaiting, and weaving of raphia; the weaving of linen and woolen yarns; etc. T. Th. S., 1:30-4. *Six hours credit.*

5. Manual Training for Teachers in the Intermediate and Grammar Grades. This Course in some respects parallels the former course but the character of the work required is quite different. The work in paper and card-board is omitted and work of another character substituted.

(a) Clay. The work in this course will take on largely the nature of pottery and questions of glazing, underglaze color, and firing will be discussed and work of more difficult nature attempted than in the previous course. The Potters' Wheel will be used to considerable extent.

(b) Raphia. In raphia the work will consist of the basketry forms worked out as in the Indian basket, and other more difficult work will be done.

(c) Weaving. The student in this course will be required to work out some designs in either linen or wool or both. The looms used will be made by each student and the work of making will form part of the requirement in elementary benchwork.

(d) Macrame. Some work in knotting and netting will be given.

(e) Rattan. This popular basketry course will be thoroughly treated.

(f) Bent Iron. This will be a thorough course in the Venetian Iron work and some additional work with the use of heat in the manner of ordinary forge work.

(g) Elementary Benchwork. Introduced by the familiar "Whittling Sloyd," this course will take up the simpler bench operations and a fairly thorough contact with wood-working tools will be given. M. W. F., 1:30-4. *Six hours credit.*

6. **Manual Training for High School Teachers.** This Course is in natural sequence with the previously described benchwork course but in it is required a very much more thorough use of tools, and some work is given in forging and wood turning. The student must become familiar with the methods of keeping the tools in order, their relative merits, and their cost.

Mechanical drawing is required as part of the course, and the student is also required to make selected readings from the small but well-selected reference library of works on manual training. T. Th. S., 9:30-12. *Six hours credit.*

Mathematics.

Professor DEFOE.

1. Trigonometry and Analytic Geometry. M. W. F., at 11:30.

2. Advanced Algebra. T. Th. S., at 10:30.

Course 2 alternates with Course 1 and is not offered in 1904-1905.

3b. The Teaching of Mathematics. Lectures and discussions on the teaching of Mathematics with special reference to high school instruction. *Two hours.* To be arranged.

For other courses in Mathematics open to students in the Teachers College, see Academic Department.

Music.

Miss _____

1. Public School Music. This Course is intended to provide teachers with the training necessary for regular instruction in music in the grades. It does not pretend to train specialists.

Physical Education.

Professor HETHERINGTON.

1. Practical Training. The work of this course comprises corrective and light gymnastics, besides gymnastic games and other recreative exercises. *Three times a week.* One hour's credit a semester for four semesters.

2a. Principles of Physical Training. A short course of general lectures to be taken with Course 1 during the first year's work. Hours to be arranged.

For a fuller statement regarding the aims and scope of this department's work, see page 123. When the new gymnasium is completed this department will greatly expand its work; and a sufficient variety of courses will be offered to enable students in the Teachers College to secure the Teacher's Certificate in physical education mentioned above.

Physical Geography.

Professor MARBUT.

2. Physiography of North America and Europe. A detailed study of the morphology of the surface of these two continents. It is designed for teachers of Physiography and for students who intend to specialize in Economics, History, or Sociology. T. Th. S., at 8:30.

5a or 5b. Meteorology. Recitations, lectures, and laboratory work. *Three times a week.*

6a or 6b. The Teaching of Geography. A Course of lectures and occasional field and library work on the teaching of geography. It will consider the content of public school geography, the methods of teaching, the aim of the subject, and the sources of material for properly illustrating it. The geography of the whole public school course will be considered, though most emphasis will be laid on the work in the 6th, 7th, and 8th grades, and in the high school. Two hours credit.

For courses in Geology open to students in the Teachers College, see Academic Department.

Physics.

Assistant Professor STEWART.

1. General Physics. *Three times a week.*

2. Experimental Physics. This Course is offered for the benefit of those who wish to acquire some knowledge of the simpler phenomena of Physics and who do not wish to pursue the subject farther. Completion of this Course does not qualify one to take any subsequent course. The lectures constitute a part of Course 1 but credit for Course 2 can not be subsequently applied to count on Course 1. *Twice a week.*

14b. Teachers' Course. Discussions on the teaching of Physics in high schools, instruction regarding the construction of apparatus, etc. *Twice a week.* To be arranged.

For other courses in Physics open to students in the Teachers College, see Academic Department.

IV. DEPARTMENT OF LAW.

FACULTY AND LECTURERS.

RICHARD HENRY JESSE, LL. D.,

President of the University.

JOHN DAVISON LAWSON, LL. D.,

Professor of Contract and International Law, and Dean of the Faculty.

EDWARD WILCOX HINTON, LL. B.,

Professor of Pleading, Practice and Evidence.

VASCO HAROLD ROBERTS, LL. D.,

Professor of Equity and Real Property.

*Assistant Professor of Law.**

MILTON ROBARDS CONLEY, LL. M.,

Assistant in Law.

HARVEY DENNIE MURRY, LL. M.,

Assistant in Law.

ELMER B. ADAMS, LL. D. (United States District Judge), St. Louis,

Non-resident Lecturer on Wills and Administration.

PAUL BAKEWELL, LL. B., St. Louis,

Non-resident Lecturer on Patents and Trade-Marks.

WALTER D. COLES, LL. B. (Referee in Bankruptcy), St. Louis,

Non-resident Lecturer on Bankruptcy.

JOSEPH VAN CLEVE KARNES, LL. D., Kansas City,

Non-resident Lecturer on Agency.

*To be appointed September 1, 1904.

ANDREW W. McALESTER, M. D., LL. D., Columbia,
Resident Lecturer on Medical Jurisprudence.

GEORGE ROBERTSON, Mexico,
Non-resident Lecturer on Public Corporations.

SELDEN P. SPENCER, LL. B., Ph. D. (Ex-Judge of Circuit Court), St.
Louis,
Non-resident Lecturer on Private Corporations.

C. O. TICHENOR, Kansas City,
Non-resident Lecturer on Domestic Relations.

WILLIAM M. WILLIAMS (Ex-Judge of Supreme Court), Boonville,
Non-resident Lecturer on Constitutional Law.

THREE-YEAR COURSE.

Requirements for Admission to Departments:

See pages 43-4.

The Course of instruction extends through three years of nine months each. There are three classes. The First Year Class; the Junior Class and the Senior Class. Lectures and recitations are held on five days in the week. In the First Year Class ten hours a week are required; and in the Junior and Senior classes twelve hours a week.

Admission to First Year Class.

Students entering the First Year Class at the beginning of the term are not required to pass any examination in Law. Those entering later may pass an examination in the subjects accomplished by the First Year Class at that date, or they may be conditioned in those subjects at the discretion of the Law Faculty.

A member of the First Year Class will not be admitted to instruction in the Junior or Senior Class.

Admission to the Junior Class.

Students entering the Junior Class must do so at the beginning of the term and must pass a satisfactory examination in the subjects of the First Year Class. In exceptional cases the applicant may be admitted later, or may be conditioned in one subject of two or three hours in each semester, which condition must be made up before admission to the Senior Class. If the applicant achieves inferior grades generally on the subjects upon which he has been examined, his case will not be an ex-

ceptional one with the above rule. Certificates from law schools, approved by the Law Faculty, showing that the applicant has accomplished with passing grades the first year's work in said schools, will be accepted in lieu of examinations in Law for the Junior Class. Certificates of admission to the bar are not accepted in lieu of examinations.

Admission to the Senior Class.

Students entering the Senior Class must do so at the beginning of the year; they must have been resident students for one year in the Junior Class, and have accomplished all the work of the First Year and Junior classes. Applicants from law schools approved by the Law Faculty, are entitled to examination for admission to the Senior Class, provided they have accomplished with passing grades the work of the first and second years of said schools, and have been resident students therein during the whole of the second year, and apply here at the beginning of the Senior Year. Admission to the Senior Class subject to conditions is not allowed.

Admission as Special Students:

Applicants who are twenty-one years of age may be admitted without examination, as special students, not candidates for a degree and may elect such work as they desire in any of the three classes. Under this rule students of the required age may begin the study of the Law without passing the entrance examination, and may prepare themselves to take and pass the entrance examinations during their Law course, the passing of which is a condition precedent to taking a degree. Applicants under twenty-one and over eighteen may be special students, provided they satisfy the Academic requirements for entrance to the Department of Law.

COURSE OF INSTRUCTION.

The object of the Department is to afford a thorough training in the fundamental principles of the Law, both substantive and remedial. Instruction is given by the study of text-books and leading cases, by lectures and exposition and by colloquy and discussion. In addition to the instruction given by the resident members of the Faculty, lectures are given each year by eminent specialists in the profession, at the bar and on the bench.

The subjects taught in the three years are as follows:

FIRST YEAR.

First Semester.

Contracts. Dean LAWSON. Lawson on Contracts.

Criminal Law and Criminal Procedure. Professor HINTON. Beale's Cases and Missouri Criminal Code.

Introduction to Real Property. Professor ROBERTS. Book 2, Blackstone's Commentaries.

Second Semester.

Bailments and Carriers. Dean LAWSON. Lawson on Bailments.

Personal Property. Dean LAWSON. Lawson's Cases on Personal Property.

Torts. Professor HINTON. Ames and Smith's Cases.

Partnership. Professor ROBERTS. Ames' Cases on Partnership.

JUNIOR YEAR.

First Semester.

Real Property. Professor ROBERTS. Finch's Cases on Property in Land.
Equity. Professor ROBERTS. Hutchin's-Bunker's Cases on Equity, with Martin's Cases.

Private Corporations. Professor ROBERTS. Wilgus' Annotated Cases.
Common Law Procedure. Professor HINTON. Ames' Cases and Martin on Civil Procedure.

Sales. Dean LAWSON. Lawson's Cases on Personal Property.

Damages. Dean LAWSON. Sedgwick on Damages.

Second Semester.

Municipal Corporations. Professor ROBERTS. Abbott's Cases with Elliott on Municipal Corporations.

Real Property. Professor ROBERTS. Continued.

Code Procedure. Professor HINTON. Assigned Cases and Bliss on Code Pleading.

Equity. Professor ROBERTS. Continued.

Private Corporations. Professor ROBERTS. Continued.

Insurance. Dean LAWSON. Woodruff's Cases on Insurance.

SENIOR YEAR.

First Semester.

Practice Court. Professor HINTON. Missouri Code.

Evidence. Professor HINTON. Thayer's Cases on Evidence with Volume I, Greenleaf on Evidence, 16th edition.

Wills and Administration. Professor ROBERTS. Chaplin on Wills.

Suretyship. Dean LAWSON. Assigned Cases.

Quasi-Contracts. Dean LAWSON. Assigned Cases.

Conflict of Laws. Dean LAWSON. Dwyer's Cases.

Second Semester.

Evidence. Professor HINTON. Continued.

Practice Court. Professor HINTON. Continued.

Bills and Notes. Dean LAWSON. Tiedeman on Bills and Notes.

Constitutional Law. Professor ROBERTS. McClain's Cases with Cooley's Elements of Constitutional Law.

Extraordinary Legal Remedies. Professor ROBERTS. Assigned Cases.

Public International Law. Dean LAWSON. Lectures.

Degrees:

The degree of Bachelor of Laws (LL. B.) is conferred upon all students who have satisfactorily completed the prescribed work of the Course. This Course requires three years for its completion, and no student is allowed to graduate except after three years of actual residence unless in case of admission to advanced standing.

The degree of LL. B. from this University entitles the holder to admission to the bar of the State without further examination.

Certificate of Attendance:

Each student who has been in regular attendance upon this Department, whether entitled to a degree or not, may, on application to the Faculty, receive an official certificate of attendance, stating the time of his attendance and, if desired, the degree of his attainments.

Academic Studies:

Students in the Law Department may without additional charge, and with the consent of the Dean, take instruction in other departments of the University, and may thus pursue, provided it does not interfere with their legal studies, such studies as Latin, French, Logic, English, Military Science, Political Economy, Political Science, Sociology, History, Elocution, etc.

Academic students may elect for credit towards the degree of Bachelor of Arts not more than nine hours of the first year's work in the Law Department.

Law students are entitled to all the privileges of other University students. They have the use of the general library of the University, and the library of the State Horticultural Society, the Gymnasium, the Athletic Field and Golf Links. They are entitled to admission to the dormitories and boarding clubs and the literary societies of the University.

Law Building and Library:

Since 1893 the Department of Law has had the occupancy of a large building built for its needs and devoted exclusively to its use. The Law

building contains three library rooms, three lecture rooms, three offices for resident professors, a Practice Court room, and several quiz rooms. From a small beginning ten years ago the library, now containing some 11,000 volumes, is now adequate to the study of Law in all its branches, and is better equipped in this respect than any other law school in the west, with one exception. The library at present contains a full series of the reports of the Supreme Court of the United States, of nearly all the Federal, District, Circuit and Courts of Appeals, and of the courts of last resorts of nearly all the states; also, the American Decisions, the American Reports, the American State Reports, Lawyers' Reports Annotated, English Ruling Cases, a large collection of English Reports, and a full system of the Reporter System; also, complete sets of nearly all of the legal journals, both American and English, and a large collection of the latest and best law text-books.

The Law library is open for consultation and study by students from 8:30 to 12:30 and from 2:00 to 5:00 during the day, and also from 7:00 to 9:00 at night. Students are given free access to all books on the shelves and are permitted to take to their rooms, for a limited time, such books as are not strictly of a reference character.

Honors and Prizes:

The Edward Thompson Company Prize.—The degree of Bachelor of Laws, *cum laude*, is conferred for special excellence in law work. Candidates for this honor must, before May 1 of the Senior Year, present an essay on some subject in Law previously assigned by the Faculty. The writer of the best of these essays is awarded the Edward Thompson Company Prize, a set of the latest edition of the "American and English Encyclopedia of Law."

The American Law Book Company Prize.—A set of "The Cyclopedia of Law and Procedure" is awarded to that member of the Senior Class (who has also been a member of the Junior Class) who in the opinion of the Faculty has made the best progress during his Senior year.

The James S. Rollins Scholarship.—A scholarship of \$50, provided in the endowment fund of the Hon. James S. Rollins, is awarded each year, to the member of the Junior Class, who, in the judgment of the Faculty has by superior scholarship and general conduct, shown himself entitled thereto.

The Karnes Prize.—A prize of \$50 (the gift of J. V. C. Karnea, LL. D., of Kansas City, Missouri) is awarded to the member of the Senior Law class who presents the best thesis on some subject of Legal Ethics.

The Practice Court:

There is now little or any dispute as to the relative merit of education by means of law schools and that to be obtained by mere practical training, or apprenticeship as an attorney's clerk. Without disparagement of practical advantages, the verdict of the best informed is in favor of the schools. "The time has gone by when an eminent lawyer in full practice can take a class of students into his office and be their teacher. Once that was practicable, but now it is not. The consequence is that law schools are now a necessity." (Report of Committee on Legal Education, American Bar Association; Chief Justice Waite.) The transfer of legal education from the office to the law school has resulted in a great advance in thoroughness. Nevertheless there has been on the practical side a serious loss, for the law students of the American law schools, though they leave the school at the end of their course with an excellent knowledge of the principles of the law, find themselves at the threshold of their work with hardly an idea of the machinery of the courts, and the methods of conducting a cause before a judicial tribunal.

As most law students go directly from the law school into practice, without serving a preliminary clerkship in a law office, it is incumbent upon a law school, especially one whose diploma admits to the bar without passing an examination, to provide that instruction in pleading and practice which formerly the student obtained in the office of a practicing attorney. To this end a chair of Pleading, Practice and Evidence was established this year. Instruction in the principles of Pleading and Practice, and the relation of those subjects to the substantive law, will be followed by a careful study of the code of civil procedure, the preparation of pleadings and motion papers and the argument of motions. The student is not only to be taught the principles of procedure in all its branches, but he will have in this school a court of his own where he may elect his remedy or his defense, sue out process, draw pleadings, prepare instructions and directions, argue questions of law, frame record entries, save exceptions and preserve them in the record and take the case up on error or appeal—all under the instruction of a teacher skilled in the procedure of the courts of this State.

The Practice Court—the clinic of this new Course—is under the charge of the Professor of Pleading, Practice and Evidence, in co-operation with the other members of the Faculty who will sit from time to time as appellate judges. The court is provided with the necessary officers, and with a court-room having all the fittings of a regular court-room and furnished with the books and records used in actual practice, and the blanks in use in the different courts in this State.

The aim of this new feature of this department is to give to the Law student a better opportunity for the study of Pleading and Practice than the modern law office can possibly afford.

Fees and Expenses:

No tuition fee is charged. A library fee of \$10 is required of every student admitted to any Class or Course of Instruction in the Department. No other fees or charges are made.

Text-books cost about \$30 a year.

The special announcement of the Law Department, containing much additional information will be sent on application to the Dean of the Department of Law.

V. DEPARTMENT OF MEDICINE.

FACULTY.

RICHARD HENRY JESSE, LL. D.,

President of the University.

ANDREW WALKER McALESTER, A. M., M. D., LL. D.,

Professor of Surgery, and Dean of the Faculty.

WOODSON MOSS, M. D., LL. D.,

Professor of the Practice of Medicine and Therapeutics.

MILLARD LEWIS LIPSCOMB, A. M.,

Professor of Physics.

JOHN WALDO CONNAWAY, D. V. S., M. D.,

Professor of Comparative Medicine.

WILLIAM GEORGE BROWN, B. S., Ph. D.,

Professor of Chemistry.

GEORGE LEFEVRE, A. B., Ph. D.,

Professor of Zoology.

CHARLES WILSON GREENE, A. M., Ph. D.,

Professor of Physiology and Pharmacology.

CLARENCE MARTIN JACKSON, M. S., M. D.,

Professor of Anatomy and Histology.

WALTER McNAB MILLER, B. S., M. D.,

Professor of Pathology and Bacteriology.

GUY L. NOYES, M. D.,

Professor of Diseases of the Eye and Ear.

MAX W. MYER, A. B., M. D.,

Professor of Gynecology and Obstetrics.

SIDNEY CALVERT, B. Sc., A. M.,
Assistant Professor of Chemistry.

OSCAR MILTON STEWART, Ph. B., Ph. D.,
Assistant Professor of Physics.

WILLIAM JEPHTHA CALVERT, A. B., M. D.,
Assistant Professor of Internal Medicine.

WALDEMAR KOCH, B. S., Ph. D.,
Assistant Professor of Physiological Chemistry and Pharmacology.

ARTHUR ERMON HACKETT,
Lecturer on Climatology.

RICHARD B. MOORE, B. S.,
Instructor in Chemistry.

HERMANN SCHLUNDT, M. S., Ph. D.,
Instructor in Physical Chemistry.

ELEXIOUS THOMPSON BELL, B. S., M. D.,
Instructor in Anatomy.

CHARLES A. PROCTOR, A. B.,
Instructor in Physics.

JOSEPH S. SUMMERS, A. B., A. M.,
Instructor in Physics.

CHARLES OSCAR GIESE, A. B.,
Assistant in Anatomy.

CHARLES CLIFFORD DuBOIS, A. B., A. M.,
Assistant in Anatomy.

OMAR RAY GULLION, A. B., A. M.,
Assistant in Anatomy.

EUGENE PARK COWGILL,
Assistant in Physiology.

EUGENIA METZGER, M. D., L. M.,
Assistant in Physiology.

WILLIAM HAMMACK GOODSON, A. B.,

Assistant in Anatomy.

CARL MILLER SNEED, M. D.,

Assistant in Bacteriology.

CAROLINE MCGILL,

Student Assistant in Zoology.

NON-RESIDENT LECTURERS.

A. B. MILLER, A. B., M. D.,

Lecturer on Gynecology.

J. A. TEFFT, M. D.,

Lecturer on Genito-Urinary Diseases.

W. F. MORROW, M. D.,

Lecturer on Abdominal Surgery.

J. C. WOODSON, M. D.,

Lecturer on Nervous Diseases.

J. F. ROBINSON, M. D.,

Lecturer on Nervous Diseases.

J. W. SMITH, M. D.,

Lecturer on Nervous Diseases.

S. B. ELKINS, M. D.,

Lecturer on Medical Criminology.

THE MEDICAL LABORATORY BUILDING.

This handsome and commodious building, devoted primarily to laboratories, was completed in 1902, and is now splendidly equipped to meet the needs of modern laboratory instruction and research. This building brings together the lecture rooms, laboratories and offices for Anatomy, Histology, Physiology, Pathology, Bacteriology, Hygiene, Pharmacology, Physiological Chemistry and Internal Medicine.

Animal rooms, aquaria rooms, mechanic's shop, and special research rooms are provided for. A cold storage plant is devoted to the exclusive needs of anatomical and pathological preparations.

During the year just closed, several thousand dollars have been spent in increasing and furnishing the equipment of the old laboratories, and the new laboratories of Internal Medicine and Physiological Chemistry have been equipped and thrown open to students for the first time.

THE PARKER MEMORIAL HOSPITAL.

Clinical Staff.

Andrew Walker McAlester, M. D. Superintendent and Surgeon
Woodson Moss, M. D. Physician
William J. Calvert, M. D. Physician
Guy L. Noyes, M. D. Opthamologist and Otologist
Max W. Myer, M. D. Gynecologist and Obstetrician
Walter McNab Miller, M. D. Pathologist
Clarence A. Good, M. D. House Surgeon
Thornton Easley Moore, M. D. First Intern
Sophia L. Evans, Head Nurse and Sup't of Training School for Nurses.

By the gift of Wm. L. Parker, the Medical Department is supplied with an excellent Hospital, which has now been in operation for two years. In the words of the donor, it is "for the benefit of the Medical Department." This building is a handsome, modern structure, conveniently located on high ground at the west side of the Campus. The building is heated by steam, lighted by gas and electricity, and well ventilated. The Hospital has beds and accommodations for about 50 patients at one time. It is supplied with a modern equipment in the Medical and Surgical appliances which contribute to the comfort and welfare of the patients.

The Parker Memorial Hospital is a State Hospital, owned and controlled by the University, and is open to the sick of Missouri for the treatment of accidents, of acute and subacute diseases, and of chronic curable diseases. Cases of contagious diseases are not admitted.

The primary purpose of the Hospital is to furnish clinical instruction to the students of the Medical Department, in order that by the observation and study of disease they may be fitted to practice medicine intelligently. The patients serve to illustrate the nature of disease, its course, and its treatment. In the use of patients in this way nothing is done to offend their sensibilities, and their interest and welfare are constantly and carefully regarded by those in charge of the Hospital.

Patients are admitted to the Hospital at any hour of the day or night.

Patients living outside of Columbia, should make application, preferably through some physician, sending a statement of the nature of their

disease. All the patients entering the Hospital shall come under the control of the Hospital Staff. The family physician will be admitted to the Hospital to consult with the Hospital Staff. All patients must pay the charges provided for in the rules, which are as follows:

Rates:—The general wards, \$7.00 a week; single rooms, \$15.00 a week. These charges include board and ordinary nursing and medicines. Operative cases are subject to extra charge for surgical dressings, etc.

Operative cases receive special nursing for 24 hours after the operation, or longer if deemed necessary. Further special nursing if desired by the patient will be charged for at the rate of \$2 a day. No fees for operations or for medical and surgical attendance are charged clinical patients, whether in general or private wards.

Patients requiring operations must deposit beforehand sufficient money to cover their expenses for the time they will probably have to remain in the Hospital. The unused balance of the deposit will be refunded when the patient is discharged.

Patients requiring medical attention must deposit in advance money for one week's board at least and more if it be required. Board is payable in all cases weekly in advance.

Private Cases.—A limited number of private cases are received. The charges are \$15 a week and upwards for ordinary medicines, nursing, and board. Private cases are required to pay a fee to the physician or surgeon in attendance.

Free Beds.—A limited number of free beds are thrown open to patients in the Parker Memorial Hospital.

THE BUSCH CLINICAL AMPHITHEATRE.

A Clinical Amphitheatre adjoining the Hospital has been provided by the gift of Adolphus Busch, of St. Louis. It has a seating capacity of about one hundred, is supplied with accessory rooms for sterilizing, anaesthetizing, etc., and has a number of special rooms for the work in dispensary clinics.

The interior of the Amphitheatre has recently been equipped with the Medical and surgical accessories of a modern clinic.

An out-patient clinic is now established in Eye, Ear, Nose, and Throat; Internal Medicine; Surgery; and Obstetrics and Gynecology. Students have the opportunity for observing and treating patients in these clinics. The classes are formed into small sections for the purpose and work always under the responsible direction and criticism of the Instructor in charge.

SCHOLARSHIP.

The Rollins Scholarship in the Department of Medicine is a prize of fifty dollars which is awarded to that member of the Junior (Third Year) class who has made the best record during the course.

REQUIREMENTS FOR ADMISSION TO THE MEDICAL DEPARTMENT.

The Medical Department is open alike to men and women.

Admission to the First Year Class:

For detailed information in regard to preliminary training required for admission to the first year class, the applicant is referred to page 43, of this catalogue.

Admission to Advanced Standing:

Every applicant for advanced standing is required to present credentials from an accredited college showing satisfactory completion of courses equivalent to those for which he seeks credit. Moreover, the usual entrance requirements to the first year class must be satisfied, and evidence of a good moral character must be presented to the Dean of the Medical Department.

Special Students:

Students may be admitted to the Medical Department without passing the regular examinations required for entrance, under the following conditions: (1) They must be at least 21 years of age; (2) They must show good reasons for not taking a regular course; (3) They must pass such examinations or other tests as shall demonstrate fitness to pursue profitably the subjects selected by them; (4) They will be allowed to take work in not more than two subjects, with such kindred work as the Head Professors may suggest. Such students are expected to do specially good work in the subjects which they choose. If at any period of the session the work becomes unsatisfactory in one or both of the major subjects, their connection with the University shall be severed by the Dean of the Department.

COURSE OF INSTRUCTION.

<i>First Year.</i>	<i>First Semester.</i>	<i>Second Semester.</i>
	HOURS CREDIT.	HOURS CREDIT.
Anatomy	6	6
Osteology	3	0
Histology	3	3
Chemistry	3	6
Physics	3	3

Second Year.

Anatomy	3	3
Physiology	6	4
Pharmacology	0	2
Chemistry	3	0
Bacteriology	3	0
Pathology	3	6
Embryology	0	3

Third Year.

Therapeutics	2	2
Practice of Medicine	3	3
Physical Diagnosis	1	1
Clinical Pathology	2	2
Hygiene	3	0
Pathology	3	0
Principles of Surgery	3	3
Obstetrics	0	3
Elective	1	2
Operative Surgery	0	2

Fourth Year.

Clinical Medicine	3	3
Clinical Surgery	3	3
Obstetrics	3	0
Diseases of Eye and Ear.....	3	3
Gynecology	2	2
Medical Jurisprudence	0	1
Climatology	0	1
Elective	3	3

MEDICAL AND ACADEMIC COURSES.

It is the policy of the Medical Department to encourage in every way possible the gaining of a liberal education as a sound preparation for the professional study of Medicine.

Students of Medicine are strongly urged to take a general scientific course in conjunction with their Medical work. The student in the Medical Department may, by a proper choice of electives in the Academic Department, do his required work in Medicine and at the same time meet the requirements for the degree of Bachelor of Arts (see pages 83-4). This, it is true, prolongs the course to at least six years, but the greater power

and broader training acquired makes a better and more successful physician. Such students are registered in both Academic and Medical Departments and must fill the requirements of both. Candidates for both A. B. and M. D. degrees are recommended to elect subjects required or which lead up to subjects required in Medicine, in approximately the order suggested by the following tabulated statement, it being presupposed that the subjects in the first and second years, under the title "Electives," shall be from the historical, philosophical, or literary groups and shall include English and either German or French. The Chemistry scheduled below is that offered to Medical Students and does not receive Academic credit. The Chemistry Department accepts in place of this work, Academic courses to the extent of 24 hours, but in such case the Chemistry must be elected in the first year.

**A COURSE LEADING TO THE DEGREES OF M. D. AND A. B.
RECOMMENDED BY THE MEDICAL FACULTY.**

<i>First Year.</i>	<i>First Semester.</i>	<i>Second Semester.</i>
	HOURS CREDIT.	HOURS CREDIT.
English	3	3
Zoology 1	3	3
Elective	9	9
<i>Second Year.</i>		
Zoology 2	3	3
Physics	3	3
Chemistry	3	6
Elective	6	4
<i>Third Year.</i>		
Zoology 4b	0	3
Chemistry	3	0
Histology	3	3
Descriptive Anatomy	3	3
Practical Anatomy	3	3
Osteology	3	0
Elective	3	6
<i>Fourth Year.</i>		
Anatomy	3	3
Physiology	6	4
Pharmacology	0	2
Bacteriology	3	0
Pathology	3	6
Elective	3	3

Fifth Year.

Therapeutics	2	2
Practice of Medicine	3	3
Physical Diagnosis	1	1
Clinical Pathology	2	2
Hygiene	3	0
Pathology	3	0
Principles of Surgery	3	3
Operative Surgery	0	2
Obstetrics	0	3
Elective	1	2

Sixth Year.

Clinical Medicine	3	3
Clinical Surgery	3	3
Obstetrics	3	0
Gynecology	2	2
Eye and Ear	3	3
Medical Jurisprudence	0	1
Climatology	0	1
Elective	3	3

With the consent of the Dean, Medical students may take accessory work offered in the Academic Department and in the School of Agriculture; but the total number of hours shall not exceed 18 a week.

COURSES IN DETAIL.

(Courses designated by a number with the letter a attached, thus: 4a, are given the first semester only. Those designated by a number with the letter b attached, thus: 4b, are given the second semester only. Those designated merely by a number are continuous courses and are given both semesters.)

Anatomy and Histology.

Professor JACKSON; Dr. BELL; Mr. GIESE; Mr. DuBOIS; Mr. GULLION;
Mr. GOODSON.

1a. Osteology. A complete unmounted skeleton is issued to every two students for their use during this Course. A deposit of \$10 is required which is refunded less a fee of \$2 when the skeleton is returned uninjured. T. Th. S., at 8:30. First Year.

2. **Practical Anatomy.** Lecture, Section I, M., Section II, F., at 11:30; Laboratory, Section I, M. W., Section II, T. F., 1:30-4. First Year.

3. **Descriptive Anatomy.** A recitation and demonstration Course in systematic human anatomy. M. W. F., at 8:30. First Year.

4. **Normal Histology.** Each student prepares, stains and mounts permanently at least 75 specimens of normal tissue. Lecture, W., at 9:30; Laboratory, Section I, T. F., Section II, M. W., 1:30-4. First Year.

7a. **Neurology and Dissection.** Including the central nervous system, sense organs, and the completion of human dissection. M. W. F., 1:30-4. Second Year.

8b. **Topographic Anatomy.** A study of the Topography of the various organs by means of serial sections through the entire body. Lectures and laboratory, M. W. F., 1:30-4. Second Year.

9. **Advanced Anatomy.** Advanced work in Anatomy or Histology. Hours to be arranged. Elective.

10. **Investigation.** Elective.

For details concerning Course 10, see page 85.

Chemistry.

Professor BROWN; Assistant Professor CALVERT; Mr. MOORE; Dr. SCHLUNDT; Mr. LIEPSNER; Mr. WOODS.

13. **General Chemistry.** This Course consists of lectures, recitations, and laboratory work, lasting three semesters, including general descriptive inorganic and organic Chemistry, theoretical and physical Chemistry, toxicological Chemistry, qualitative chemical analysis, physiological Chemistry and urinary analysis, with special reference to the needs of the student in medicine, pharmacology, physiology, pathology, hygiene, and toxicology so far as the time will permit. During the whole course the theoretical conceptions of Chemistry are not neglected, and an attempt is made to present the science of Chemistry as a consistent unity. Recitations are regularly held, covering the text and lectures, and from time to time written work is or may be required.

The laboratory work is carried along with the lectures and recitations. For this work each student is provided with desk room and apparatus of his own. Practical exercises are required in the examination of water, air, general qualitative chemical analysis, the detection of poisons (inorganic and organic), the preparation and testing of inorganic compounds, the preparation of some typical hydrocarbons, alcohols, acids, fats, the estimation of urea and the sugars, the reactions of uric acid, of the principal alkaloids, and other important organic compounds, and incidentally the

detection of adulterations. *Three times a week, first semester. T. Th. S., 9:30-12. Five times a week, second semester. T. Th. S., 8:30-12; Th. S., 1:30-4. First Year. Three times a week, first semester. T. Th. S., 1:30-4. Second Year.*

Texts: Witthaus' *The Medical Student's Manual of Chemistry*; or Bartley's *Text-book of Medical and Pharmaceutical Chemistry*; or Attfield's *Chemistry: General, Medical, and Pharmaceutical, including the Chemistry of the United States Pharmacopoeia*; Noyes' *Qualitative Chemical Analysis*, and special notes of the instructors.

Physics.

Assistant Professor STEWART; Mr. PROCTOR; Mr. SUMMERS.

1. **General Physics.** An elementary course in Mechanics, Heat, Magnetism, Electricity, Sound and Light. Lectures and recitations, W. F., at 10:30; Laboratory, M., 9:30-12.

Zoology.

Professor LEFEVRE; Miss MCGILL.

4b. **Embryology of Vertebrates.** The Course is designed to lay the foundation of Vertebrate Embryology. In the laboratory the development of the chick is carefully studied from preparations of entire embryos and from sections representing successive stages throughout the development. These observations are used as a basis of comparison with the development of higher forms, including man. Such questions as ovulation, menstruation, determination of the age of embryos, relation of the embryo to the uterus, and the mechanism of nutrition of the embryo, receive special attention. Lecture, T., at 10:30; Laboratory, T., 8:30-10:30, Th., 8:30-11:30.

Physiology and Pharmacology.

Professor GREENE; Assistant Professor KOCH; Mr. COWGILL; Dr. METZGER.

The Courses in Anatomy, Histology, Physics, and Chemistry given in the first year of Medicine, or the conditions outlined in the announcement of the Academic Department (see page 115) are prerequisites for admission to these Courses. For elective work see Academic announcement.

1. **Experimental Physiology.** This Course gives a detailed survey of Animal Physiology. Individual sets of apparatus are provided in the laboratory and selected experiments illustrating the facts and fundamental principles of the subject are performed by the individual student under

the personal supervision of the instructors. Text-book: American Text-book of Physiology. Lectures, M. W. F., 8:30; Laboratory, M. W. F., 9:30 to 12. Second year to first of April, 10 hours' credit.

3b. Pharmacology. This Course presents the physiological action of chemicals. The laboratory experiments are distributed to groups of students, and each group is required to demonstrate to the other members of the Course. Text-books: Cushney's Pharmacology and Therapeutics; Sollman's Pharmacology. Lecture, M. W. F., at 8:30; Laboratory, M. W. F., at 9:30 to 12. Second Year, during April and May, two hours' credit.

Pathology, Bacteriology and Hygiene.

Professor MILLER; Dr. SNEED.

1a. Bacteriology. Introductory and General. While essentially a pure science Course and intended to give the student a comprehensive view of the whole field of bacteriology, independent of any particular professional application, special attention is given to the technique of the science. The student prepares media, separates and makes pure cultures, sterilizes, incubates, disinfects, and prepares and studies microscopic preparations. The knowledge and practice obtained in this Course prepare the student for the further study of the subject as a pure science or for the practical applications of its methods in the study of domestic and municipal hygiene, in agriculture, dairying, brewing, and other industries, in household economics, sanitary engineering, and in veterinary and human medicine. Elective to students who have made the necessary preparation in chemistry, physics and biology. Lectures and laboratory. *Three times a week.* Second Year.

2. Pathology. General and comparative. The conduct of the necropsy,—macroscopic, microscopic, bacteriologic, experimental, writing of protocol. This work includes the study of degeneration, regeneration, inflammation, the effects of poisons, the infections, animal parasites, and tumors. In the study of infections is included the growth of the infectious organisms in pure culture, their examination and the study of their effects upon rabbits, guinea pigs, mice, and other small domestic animals. While the work centers about the post-mortem examination, the radius of operation extends into the field of experimental pathology and is rounded out by the study of preserved material derived from former necropsies or obtained elsewhere. When the work of the student is not directed to the post-mortem examination or demonstration of gross material, about five microscopic sections are given daily to the student for staining, mounting, and study. These preparations have a permanent value and become the

property of the student. Lectures and laboratory. *Three times a week, first semester; six times a week, second semester.* Second Year.

4a. Pathology. Having completed the Course in general and experimental pathology, the work of the student is directed to the various pathological conditions of the individual organs. Lectures and laboratory. *Three times a week.* Third Year.

5. Bacteriology. Research Work. A limited number of properly qualified students are admitted to the laboratory for work of this kind. The results of such work must be submitted in writing and be of such a nature as to be approved for publication.

6. Pathology. Research Work. Explanation as given under Course 5.

7b. Hygiene. Lectures with demonstrations on the following subjects: History of Hygiene; hygienic conditions of air and soil, with special reference to the influence of climate (acclimatization) upon diseases; general hygiene of cities, dwellings, schools, prisons, etc.; commercial hygiene; ways in which important diseases, such as malaria, typhoid, diphtheria, tuberculosis, pneumonia, influenza, whooping cough, small-pox, measles, scarlet fever, dysentery, cholera, bubonic plague, etc., spread, and the means of preventing these epidemics; vaccination against small-pox, hydrophobia, and other diseases; disinfection with special reference to households and schools, quarantines; organization of boards of health in different countries; value of compulsory registration, vital statistics, etc. Elective to properly qualified students. Lectures. *Three times a week.* Third Year.

Internal Medicine and Therapeutics.

Professor Moss; Assistant Professor W. J. CALVERT.

1. Practice of Medicine. Lectures, recitations, and clinics. Text-books: Anders and Osler. *Three times a week.* Third Year.

2. Clinical Medicine. Students in this Course are required to make written reports of cases in their charge, and to write articles upon subjects assigned. These articles and reports are discussed by the class and the Professor. Monographs and essays upon important subjects, by eminent authors are reviewed before this class, and the students are required to make digests. *Three times a week.* Fourth Year.

3. Physical Diagnosis is pursued during one laboratory period per week throughout the scholastic year. The work consists of (1) lectures on auscultation and precussion with practical work on the normal and diseased organs; (2) a study of the several diseases affecting the thoracic viscera, by lectures, demonstrations of organs and charts whenever possible, and by clinics. From time to time the class may visit some of the large State institutions for additional work.

4. Clinical Pathology is pursued during two laboratory periods per week throughout the scholastic year. The work consists of lectures and of practical study of sputum, blood, etc., in the laboratory. Each student is provided with a microscope and necessary apparatus. General apparatus and reagents are always at hand. In this course especial attention is given to the application of laboratory methods to diagnostication and their role in the interpretation of the symptom complex of diseases.

5. Therapeutics. Aside from drugs, therapeutical consideration, such as hydrotherapy, electrotherapy, dietetics, etc., receive due attention. Prescription writing becomes a matter of daily drill.

Comparative Medicine.

Professor CONNAWAY.

1a. Comparative Medicine. Lectures, laboratories and clinics. This Course is offered to afford students of human Medicine an opportunity to broaden their knowledge of clinical symptoms and pathological processes. Special attention is given to those diseases of lower animals that are communicable to man. Certain of the non-communicable diseases of the lower animals are considered, where the comparative study is deemed especially important for the better understanding of the corresponding human maladies. The students are made familiar by practical demonstrations with clinical as well as finer methods of diagnosis. They are also instructed in the measures that are employed for eradicating or controlling these sources of infection to man. The library, laboratory, and clinics of the Veterinary department are available as aids to this instruction. *Three times a week.* Third Year.

2. An opportunity for advanced and research work will be afforded students who have proper preparation. Elective.

Surgery.

Professor MCALESTER.

1. Surgery. Lectures and recitations, including inflammation, ulceration, septicoemia, etc., bandaging, dislocation and fracture dressing, and minor operations. In this course, the student does much practical laboratory work under the supervision of the instructor. *Three times a week.* Third Year.

2b. Operative Surgery. This course includes operations on the cadaver and on the lower animals, with instruction in the details of operative preparations, dressings, etc. *Twice a week, Second Semester.* Third Year.

3. Clinical Surgery. Lectures on major surgery, with clinics and practical work in the Parker Memorial Hospital. *Three times a week.* Fourth Year.

Obstetrics and Gynecology.

Professor MYER.

1b, 2a. Obstetrics. Lectures and clinics. A complete set of abnormal pelves, Auzoux models of the uterus and contents of the various periods of gestation and charts are employed for demonstration. Each student is required to diagnose presentations, positions, and to perform all obstetrical operations on the Schultze-Winckel manikin. The maternity ward of the Hospital offers opportunity for the observation of cases, and besides this ample material is furnished the students in the outdoor clinic, where they are permitted to care for cases, under the supervision of the head of the department. *Three times a week.* Second semester. Third Year; first semester, Fourth Year.

3. Gynecology. The lectures, with demonstration of museum specimens gives the students a general theoretical knowledge of the subject. Practical work is obtained in the outdoor clinic. All clinical operations are witnessed by the students. *Twice a week.* Fourth Year.

Ophthalmology and Otology.

Professor NOYES.

1. Diseases of the Eye and Ear. Lectures, recitations and clinics. The work in this Course is largely practical. The student familiarizes himself with the technique of examination of the eye, ear, nose, and throat by actual work in the dark-room of the Hospital. Each member of the class works at the test case in the determination of errors of refraction, under the direction of the instructor in charge. Clinical material is abundant and the student observes and assists in the treatment of a great variety of cases. Instruction in Rhinology and Laryngology is given in this Course during the second semester. Texts: Ophthalmology, May, Fuchs; Otology, Gradle, Politzer; Rhinology, Gradle, Browne. *Three times a week.* Fourth Year.

Special Courses.

1b. Medical Jurisprudence. *Once a week.* Fourth Year. Professor MCALISTER.

2b. Medical Climatology. Lectures upon climate as related to health and disease. Special attention is paid to the climatic conditions prevalent at the various health resorts. *Once a week.* Fourth Year. Mr. HACKETT.

For special announcement of the Medical Department, address Irvin Switzler, Registrar, Columbia, Mo.

For further information concerning the Medical Department, address,
A. W. MCALESTER, M. D., Dean,
Columbia, Mo.

VI. DEPARTMENT OF MILITARY SCIENCE AND TACTICS.

(Created by statute the Missouri State Military School.)

WILLIAM DIXON CHITTY, Captain, 4th U. S. Cavalry,

Professor of Military Science and Tactics, and Commandant of Cadets.

Appointment of State Cadets:

The following extracts from the Revised Statutes, 1899, of Missouri (sections 10561-6 inclusive), will be of interest to those who desire to receive appointments as cadets:

"The Military Department of the University of the State of Missouri as organized under section 1225, Revised Statutes of the United States, and section 10507, Revised Statutes of Missouri, 1899, is created the Missouri State Military School.

"The corps of cadets of the Missouri State Military School shall consist of appointees of Senators and Representatives, and such students as may voluntarily enter such school. All appointments under this section shall be for the term of two years. Each Senator and Representative of the General Assembly of Missouri shall have the power to appoint a cadet from his district by the first day of August of each year: Provided, that if there shall be no application for such cadetship in any district by the first day of August, in any such year, then such appointment may be made from any other district in this State; and, provided, that in case of death, resignation, or expulsion from the University of any cadet from such district, the Senator or Representative thereof may fill such vacancy at any time. All appointees under this section shall pass the required examination for admission to the University.

"Cadets receiving instruction, as provided in the preceding section, shall be matriculated in all Academic departments, and in the College of Agriculture and Mechanic Arts of the University, free from tuition and other fees.

"The corps of cadets, as provided in the preceding sections, shall have the military organization prescribed for the National Guard of the State and be reckoned a part thereof, and as such entitled to all such provisions as are or may hereafter be made for the National Guard of Missouri.

"The military government and discipline of the cadets shall be prescribed by regulations prepared by the Faculty of the University and approved by the Governor of the State. The officers of the corps of cadets shall be appointed and commissioned by the Governor of the State, upon the recommendation of the Faculty of the University, and shall have the powers conferred by said regulations.

"Cadets shall be individually responsible for all State property issued directly to them, and shall constitute a guard for the safe-keeping and preservation of all University property."

Requirements for Admission:

No cadet will be received who is less than five feet, one inch in height, or who is in any way physically disqualified for military service, or who has not been duly matriculated in some other Department of the University.

All male students of the University not physically disqualified, will be allowed to enroll themselves as voluntary cadets. A copy of the regulations for the government of the cadets is given to each cadet upon his entrance into the Missouri State Military School. Cadets should report by September 11, if possible. Vacancies may be filled at the discretion of the Senators and Representatives.

Equipment and Supplies:

Two hundred and ten Springfield cadet rifles of the latest model; one Gatling gun, cal. 45, with full equipment; two 3.2 inch rifled field guns (breech loaders), with carriages and implements; twenty-five sabres, and a suitable amount of ammunition and target materials are furnished by the United States. The State supplies ammunition, camp equipage, utensils, etc. The university supplies instruments and instruction for the band.

Uniforms:

Cadets wear but one style of uniform, known as the undress or fatigue uniform. Uniforms must be worn at all military exercises, and tailor made uniforms are supplied to volunteer cadets at a contract price (about \$12.50). The State usually furnishes uniforms to regularly appointed cadets free of cost (one entire uniform every year to each appointed cadet, depending upon amount of appropriation by Legislature).

Regulations:

Cadet regulations prescribe that military drill, etc., shall be held at least three hours a week, one of which shall be for theoretical and two for practical instruction. The regulations require, also, whenever the means of the University permit it, an annual encampment of from eight to ten days, during which the instruction is entirely military and practical. The

expenses of the encampment are borne by the the University. A copy of the regulations may be secured at the Commandant's office. Every cadet must strictly conform to these rules.

COURSE OF INSTRUCTION.

FIRST YEAR.

Practical instruction in the schools of the soldier, company, and battalion (infantry), and extended order.

Practical instruction in rifle-firing, 100, 200, 300, 400, and 500 yards.

Practical instruction in duties of camp, embracing guard duty, etc.

Recitations in infantry drill regulations through school of the company, ceremonies of guard mounting, dress parade, inspection, review, muster and extended order.

Recitations in guard duty and cadet regulations.

Recitations in artillery tactics, sabre drill, etc.

SECOND YEAR.

Practical instruction in the schools of the company and battalion, and extended order.

Practical instruction in the service of field-guns (foot battery), with mechanical manoeuvres.

Practical instruction in the service of machine guns.

Practical instruction in rifle-firing, 100, 200, 300, 400, and 500 yards.

Practical instruction in the duties of camp life, embracing guard duty, etc.

Practical instruction in military signaling.

Recitations in infantry drill regulations, school of battalion.

Recitations in artillery tactics, manual of the piece dismounted, etc.

Recitations in Military Science:

Lectures are given by the commandant on army organization, the Army of the United States, army regulations, courts martial, and military law, the customs of war, security and information (including outposts, advance and rear guards, patrols, reconnoissances, orientation, and map reading), guard duty, castrametation, field service, field fortifications, rifle-firing, and target practice.

Recitations are held during the winter months, when the weather is unfit for drill. All cadets not included in the two preceding classes are required to take a short review of the previous work.

Certificate of Proficiency:

To have passed through the entire course does not entitle a cadet to receive a certificate of proficiency in Military Science and Tactics, but it is the rule now adopted in the University, that the certificate will be issued to every cadet, state or volunteer, who takes the entire course and attains a grade of at least 70 per cent in *every examination* given during the two years in Military Science and Tactics.

Prizes:

The Curators have provided an elegant silver cup to be awarded each year to the best drilled company.

A medal is given to the best drilled private, and a target medal to the best marksman.

Battalion Organization:

Staff.

Major	E. E. Percy
Adjutant	E. F. Robinson
Quartermaster	E. J. Allen
Sergeant Major	N. B. Harrison
Quartermaster Sergeant	W. J. Spalding
Color Sergeant	J. H. Barnes

Company A.

Captain	A. R. Eitzen
First Lieutenant	E. A. Bonnot
Second Lieutenant	J. N. Price

Company B.

Captain	W. H. Goodson
First Lieutenant	L. E. Johnson
Second Lieutenant	J. Riggs

Company C.

Captain	J. T. Davis
First Lieutenant	E. C. Constance
Second Lieutenant	C. N. Hartwell

Artillery.

Captain	F. C. Hilder
First Lieutenant	E. Frieze

Cadet Band.

Bandmaster	Burr H. Ozement
Assistant Director	H. Welch
Drum Major	A. H. Welch
Chief Bugler	T. W. Switzler

Total strength of Battallion January 1, 1904, 204 cadets.
Those cadets are appointed to office who show ready obedience, zeal, and capacity in the discharge of military duty. The Governor of Missouri issues commissions to those entitled by their battallon rank to receive them

State Commissions:

The Revised Statutes of Missouri, 1899, provides as follows:
"Chapter 130, Section 8601. Every graduate of any college in the state of Missouri in which military instruction is regularly given by an officer of the United States Army detailed for that purpose, who shall have received military instruction during the course of four years, shall be entitled to a commission as brevet second lieutenant of the National Guard of Missouri, subject to such physical examination as to ability as the commander-in-chief may from time to time prescribe: Provided, that application for such commission be made within one year after graduation from such college, and that such applicant shall be at the time a citizen of the state of Missouri."

VII. COLLEGE OF AGRICULTURE AND MECHANIC ARTS

A—The School of Agriculture.

B—The Experiment Station.

C—The School of Engineering.

FACULTY.

RICHARD HENRY JESSE, LL. D.,

President.

†HENRY JACKSON WATERS, B. S. A.,

Dean of the Faculty, and Director of the Experiment Station.

FREDERICK BLACKMAR MUMFORD, B. S., M. S.,

Professor of Agriculture, Acting Dean of Faculty, Acting Director of the Experiment Station, and Curator of the Agricultural Museum.

PAUL SCHWEITZER, Ph. D., LL. D.,

Professor of Agricultural Chemistry, and Chemist to the Experiment Station.

EDWARD ARCHIBALD ALLEN, Litt. D.,

Professor of English Language and Literature.

MILLARD LEWIS LIPSCOMB, A. M.,

Professor of Physics.

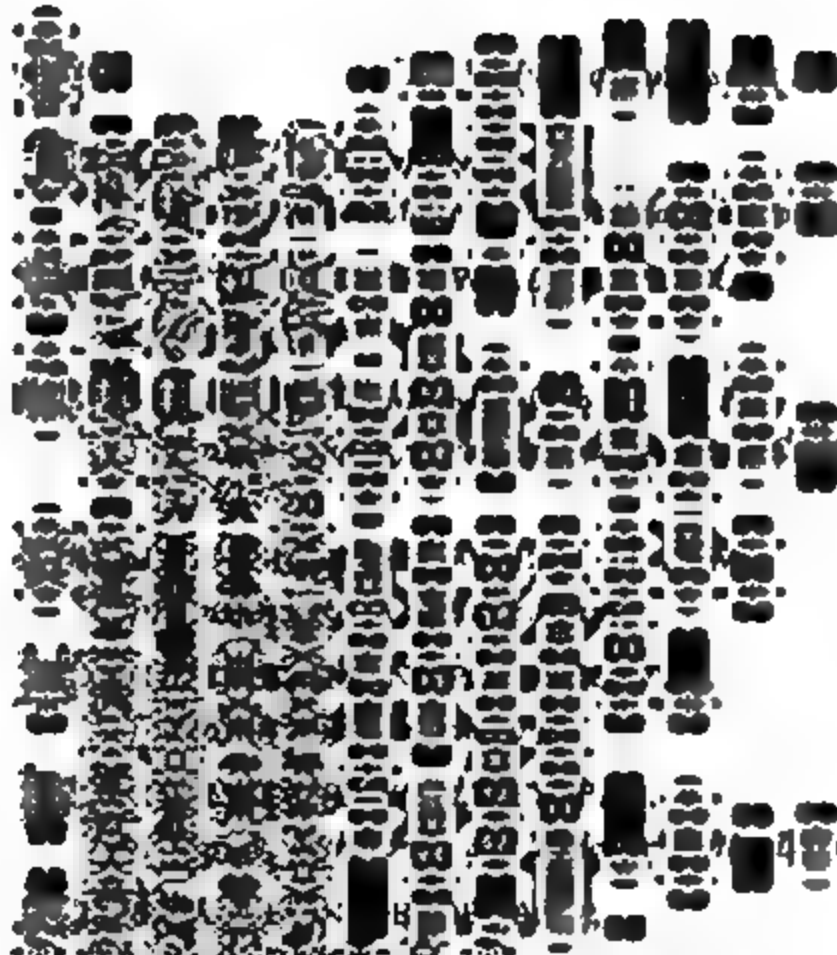
JOHN WALDO CONNAWAY, D. V. S., M. D.,

Professor of Comparative Medicine, and Veterinarian to the Experiment Station.

JOHN CHARLES WHITTEN, B. S., M. S., Ph. D.,

Professor of Horticulture and Horticulturist to the Experiment Station.

†On leave of absence.



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WALTER SCOTT WILILIAMS, C. E.,
Assistant Professor of Civil Engineering.

ERNEST BROWNING FORBES, B. S., B. S. A.,
Assistant Professor of Animal Husbandry.

ABRAHAM LINCOLN HYDE, Ph. B.,
Assistant Professor of Civil Engineering.

RICHARD B. MOORE, B. S.,
Instructor in Chemistry.

†THOMAS JACOB RODHOUSE, B. S.,
Instructor in Drawing.

WILLIAM HUTCHINSON COOK,
Instructor in Manual Training.

HERMANN SCHLUNDT, B. S., M. S., Ph. D.,
Instructor in Physical Chemistry.

GEORGE MASON TUCKER, B. S., Ph. D.,
Instructor in Agriculture.

ARTHUR C. DUNCAN,
Instructor in Shopwork.

WALTER LAFAYETTE HOWARD, B. Agr., B. S., M. S.,
Instructor in Horticulture.

ROBERT MONTGOMERY BIRD, A. B., B. S., Ph. D.,
Instructor in Agricultural Chemistry.

LEWIS DARWIN AMES, B. L., A. B., A. M.,
Instructor in Mathematics.

HOWARD SPRAGUE REED., A. B.,
Instructor in Botany.

GEORGE I. REEVES, B. A.,
Instructor in Entomology.

ROBERT JULIAN FOSTER, D. V. S.,
Instructor in Veterinary Science.

†On leave of absence during 1903-4.

JACOB H. WALLACE, B. S. in M. E.,
Instructor in Mechanical Engineering.

LLOYD CARLTON NICHOLSON, A. M., B. S. in E. E.,
Instructor in Electrical Engineering.

WILLIAM BENJAMIN ROLLINS, B. S., in M. E.,
Instructor in Drawing.

ERNEST FRANKLIN ROBINSON, B. S. in C. E.,
Instructor in Drawing.

LOUIS INGOLD, A. B., A. M.,
Assistant in Mathematics.

MERRITT W. HARPER, M. S.,
Assistant in Agriculture.

CHARLES BROOKS, A. B.,
Assistant in Botany.

ERNEST HOWARD FAVOR, A. B.,
Assistant Horticulturist.

LECTURERS.

*D. F. LUCKEY, D. V. S., State Veterinarian,
Non-resident Lecturer on Veterinary Surgery.

†A. E. HACKETT,
Lecturer on Climatology.

SPECIAL LECTURERS TO THE SCHOOL OF AGRICULTURE.

MR. A. H. HUME,
Lecturer on Agronomy.
University of Illinois.

MRS. I. K. TILSON,
Poultry Lecturer, Wisconsin.

*In the service of the State Board of Agriculture.

†In the service of the U. S. Government.

Historical Statement:

This College had its origin in the beneficence of National, State, and local governments. Its location, objects, and aims are defined in the following extracts from the Acts of Congress and the laws of the State of Missouri:

"There is hereby established a College of Agriculture and Mechanical Arts at Columbia, and a School of Mines and Metallurgy at Rolla, provided for by the grant of the congress of the United States, as distinct departments of the university of the state of Missouri." (R. S. of Missouri, 1899, Sec. 10504.)

"The leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts in such manner as the legislatures of the states may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life." (Act of Congress, July 2, 1862, Sec. 4.)

"To effect the leading objects of the colleges, as herein established, it is provided that the students and members thereof shall be admitted to the library, museums, models, cabinets, and apparatus, and to all lectures and instructions of the university, which now exist or may hereafter exist, and to all other rights and privileges thereof, in a manner as full and ample as the students of any other department in said university; and to provide for instruction in military tactics, as herein required, it is enacted that in case a system of military education shall be established by congress, the University of the state of Missouri is hereby required by law to make the necessary provisions for carrying out the plan so established in connection with the institution." (R. S. of Missouri, 1899, Sec. 10507, p. 2017.)

"The College of Agriculture and Mechanic Arts and the School of Mines and Metallurgy herein provided for, shall have each a separate and distinct faculty, whose officers and professors may be the same in whole or in part as the officers and professors in other colleges, and departments of the University." (R. S. of Missouri, 1899, Sec. 10508.)

The citizens of Boone county made a donation of \$90,000 for the erection of a building and the purchase of lands for an experimental farm and this College was permanently located at Columbia as a Department of the University, and the School of Mines and Metallurgy was located at Rolla, in Phelps county. The latter is under the same general control as the College of Agriculture and Mechanic Arts.

Endowment of the College:

1. The proceeds of the sales of public lands donated to Missouri by the act of Congress of July 2, 1862. The State received as her share two hundred and seventy-five thousand acres, of which there have been sold up to date two hundred and thirty thousand nine hundred and three acres, yielding three hundred and fifty-five thousand dollars. This sum is invested in State certificates of indebtedness, at 5 per cent, and yields seventeen thousand five hundred dollars. Of this amount one-fourth is by law appropriated to the support of the School of Mines and Metallurgy, at Rolla.

The annual appropriation of \$25,000, under the act of Congress of August 30, 1890 (Morrill bill). Of this amount about one-sixteenth is by law appropriated to the "Lincoln Institute," at Jefferson City, for the education of negro children in Agriculture and Mechanic Arts, and one-fourth of the remainder is given to the School of Mines and Metallurgy, at Rolla.

3. The College Farm, which cost originally \$60,000.

4. \$30,000 from Boone county.

The above sums, together with the assistance derived from the association of the College of Agriculture with the University, furnish an abundant income for all purposes of instruction and scientific investigation.

A. SCHOOL OF AGRICULTURE.**Requirements for Admission:**

For information in regard to the requirements for admission to the Collegiate Course in Agriculture, see page 43.

No entrance examination or special preparation is required for admission to the Short Winter Courses.

FACILITIES FOR INSTRUCTION.**Buildings:**

Agricultural Hall, containing offices of Dean and Director, class-rooms and offices of the Professors of Animal Husbandry and Agronomy, office of Secretary of the State Board of Agriculture, office of Division Chief of the United States Weather Bureau, and Agricultural Museum.

Horticultural Hall, a stone building 120 x 54 feet, two stories and a well-lighted basement with plant house and insectary each 16 x 50 feet, contains class-rooms, laboratories, offices and preparation rooms for Horticulture, Botany and Entomology.

Dairy Hall, a stone building 45 x 150 feet, two stories with cheese curing room in basement, contains large rooms for creamery manufactures, cheese-making room, dairy work, milk-testing laboratory, offices, classrooms, etc.

Numerous Barns, including a cattle-feeding shed 300 x 30 feet, a sheep barn, dairy barn, implement shed, and smaller structures. A new \$10,000 cattle barn will be begun during the summer of 1904.

Shops, containing work rooms for carpentering, blacksmithing, and wood and iron turning. The Mechanical Shops are excellent.

Instruction is also imparted to Agricultural students in the buildings for *Chemistry, Geology, Zoology, Physics* and *Academic Hall*.

Laboratories:

Live Stock Laboratory, containing rooms for the Department of Veterinary Science, breeding laboratory, and Stock Judging Pavilion.

Laboratories for Botany. General laboratories for physiological and structural Botany, and special laboratories and culture rooms for phases of the physiological and mycological work, are located in Horticultural Hall. The laboratories are equipped with compound dissecting microscopes, microtomes, steam and steam-pressure sterilizers, incubators, balances and much necessary glassware; an herbarium of Missouri plants and general collections from all parts of the country. The Forty-second General Assembly has appropriated funds for the erection and equipment of laboratories for practical and experimental work in plant physiology and pathology, which will give facilities enjoyed by very few institutions in the country.

Laboratories for Entomology. The laboratories are located in the new Horticultural Hall, and have in connection a new insectary. The laboratories are supplied with microscopes, dissecting instruments, microtomes, breeding cages, aquaria, spraying machines, insecticides, and re-agents. The museum contains collections of the more important injurious and beneficial insects arranged to illustrate their habits of work and life history. There are several thousand species of adult insects from all orders correctly classified and labeled. Twelve current periodicals on Entomology are regularly received.

Laboratories for Horticulture. The laboratory facilities of the Horticultural Department comprise the following:

The experimental grounds, comprising about 1,000 varieties of fruits and a good collection of ornamental shrubs and trees, furnish excellent facilities for field laboratory work, such as methods of planting, pruning, cultivation, etc.

The department has about 3,000 square feet of forcing house space

under glass, which gives opportunity for work in plant propagation and forcing house methods.

In the basement of the Horticultural building are commodious rooms for the winter storage of dormant trees, cuttings, bulbs, stocks, scions, etc., and for performing such work as grafting, budding, making cuttings and general winter nursery work.

Other Laboratories. There are well-equipped laboratories in Agronomy, Agricultural Chemistry, Veterinary Science, Dairying, Geology, Zoology and Physics.

Libraries:

The library for Agriculture and allied subjects has been carefully selected and it is believed to be one of the best collections of agricultural books west of the Mississippi river.

Farm and Live Stock:

A farm comprising 615 acres is used chiefly for instruction and for agricultural experiments, the experiments including tests of field crops, feeding experiments with cattle, hogs and sheep, breeding experiments and investigations in Horticulture, Entomology, Botany, etc. These experiments are of the greatest possible value to students in the regular courses.

Live Stock. The College maintains herds of cattle, swine and specimen flocks of different breeds of sheep. We now have specimens of the Short-horn, Hereford, Aberdeen Angus, Jersey and Holstein breeds of cattle. In addition to these, one hundred feeding cattle are kept continuously on the farm. Duroc Jersey, Berkshire and Poland China swine are available for instruction.

Practical Excursions:

Visits to successful farms and breeding establishments are made under the guidance of an Instructor for the study of special phases of Agriculture. The principles taught in the class-room are thus observed in their application to agricultural operations on well-managed farms.

Dairy Husbandry:

The facilities for teaching Dairying include a well-equipped creamery room 40 x 51 feet, arranged for ten power separators and churns; a cheese-room 40 x 42 feet; a farm dairy room 22 x 40 feet; rooms for pasteurizing, refrigerating and cold storage; milk testing and research laboratories; a library and lecture room. A new laboratory for Dairy Bacteriology has been recently equipped. The dairy manufactures 300 to 500 pounds of butter each week throughout the year.

I. SHORT WINTER COURSES.

(See Special Circular.)

The School of Agriculture now offers three Short Winter Courses as follows: Plant Production; Animal Husbandry; Dairying.

Each of these is a special course designed to occupy the entire time of the student.

It is the aim to give the student the largest amount of thoroughly practical information about farming, stock breeding, stock judging, dairying, gardening, fruit-growing, veterinary science, carpentry, and blacksmithing, possible in twelve weeks, and, at the same time, instruct him in the elements of Chemistry, Geology, Entomology, and Botany as applied to Agriculture and Horticulture.

To suit the convenience of farmers these courses are given in the winter. They are open to all over sixteen years of age, and no entrance examination or special preparation is required. An entrance fee of \$5 and \$2 for each laboratory or shop taken cover all college expenses.

Full details of all of these short courses will be given in a special circular, which will be ready for distribution in September, 1904, and will be sent free upon application to the Dean of the College.

Course in Plant Production:

This Course is entirely devoted to the study of plant production, including Horticulture. It includes lectures and demonstrations on growing, cultivating, harvesting, and marketing of farm and garden crops. In addition to the above subjects students will be required to take certain courses on Soils, special work in Botany, Agricultural Chemistry, Entomology, Land Draining, and Carpentry and Blacksmithing.

Course in Animal Husbandry:

In this Course the student's time is occupied in the study of feeding, breeding, judging, and general management of farm animals. Actual examination of the animals representing the approved types gives the student a practical knowledge of the best types for the various purposes of the farm.

Course in Dairying:

This Course is designed especially for those who wish to obtain a knowledge of modern dairy practice as related to the creamery and the cheese factory, and at the same time to study the scientific principles upon which this practice is based.

The facilities for teaching dairying provided by our new building and equipment are unexcelled. While special attention will be given to the

manufacture of dairy products, feeding for the production of milk and study of dairy breeds and dairy types will be included. The dairy building is supplied with a complete equipment for separating and testing milk, making butter and cheese, and pasteurizing milk.

II. COLLEGIATE COURSE IN AGRICULTURE.

There is a constantly increasing demand for thoroughly well-trained men in Agriculture. Graduates of the Collegiate Course are in great demand as farm managers, Experiment-Station workers, teachers of Agriculture, and editors of agricultural newspapers. The sons of farmers, also, who will eventually become owners and managers of farms will find this course especially adapted to their needs.

The impression that this Course is less practical than the Short Winter Courses is wholly unwarranted. The instruction in the practical subjects is more thorough than is possible in the shorter courses. The instruction given in the related sciences is essential to a clear understanding of the principles and methods of practice.

The Course includes general culture subjects, and the opportunities for free electives make it possible for the student to secure a liberal education while pursuing the technical work of the Course.

COURSE OF INSTRUCTION.

Freshman.

First Semester.	Second Semester.
Horticulture, 8:30, M. W. F..... 3	English, 8:30, T. Th. S. 3
English, 8:30, T. Th. S. 3	Chemistry, 9:30 to 12:30, M. W. F. 3
Chemistry, 9:30 to 12:30, M. W. F. 3	Shop, 10-12 3
Botany, 1:30-4, W. F. 3	Botany, 1:30-4, W. F. 3
(Lab., 11:30, T.)	(Lab., 11:30, T.)
Stock Judging, 1:30 to 4, T. Th. S. 3	Dairying, 1:30-4, T. Th. S.... 3

Sophomore.

First Semester.	Second Semester.
Agronomy, 8:30, W. F. 3	Agronomy, 8:30, W. F. 3
(Lab., 1:30-4, M.)	(Lab., 1:30-4, M.)
Entomology, 10:30, T. Th. S.... 3	Principles of Feeding, 10:30, T. Th. S. 3
Zoology 3	Zoology 3
Physics, 1:30-4, T. Th. S. 3	Physics, 1:30-4, T. Th. S. 3
Elective 3	Elective 3

Junior.

First Semester.		Second Semester.	
Horticulture, 8:30, T. Th. S.....	3	Horticulture, 8:30, M. W. F. ...	3
Animal Breeding, 9:30, T. Th. S.	3	Agricultural Engineering, 10:30,	
Veterinary Science, 1:30-4, T. Th.		T. Th. S.	3
S.	3	Veterinary Science, 1:30-4, T. Th.	
Elective	6	S.	3
		Elective	6

Senior.

First Semester.		Second Semester.	
Geology	3	Agricultural Chemistry	3
Agricultural Chemistry	3	Elective	12
Elective	9		

Required Work:

All students who are candidates for a degree must satisfactorily complete 120 hours of work. Of this work, 84 hours must consist of the subjects laid down in the foregoing schedule.

Elective Work:

Students who have finished the required Course in any subject may elect work in accordance with the advice and approval of the Dean. Sufficient time is given for electives in the Course so that students in the upper classes may concentrate their energies upon a chosen line of work. It is advised in all cases that students elect not only a technical subject but also related science Courses. A student who specializes in Horticulture should also do special work in Botany and Entomology, while a student who elects Animal Industry as a major should take certain Courses in Zoology and Veterinary Science and electing Agronomy a student should give more time to Chemistry and Physiological Botany. It is expected that those who intend to engage in college or experiment station work will elect modern languages at the beginning of the Sophomore year. The students should in all cases advise with the Professors and secure the written approval of the Dean before electing Courses.

Degrees:

The degree of Bachelor of Science in Agriculture is conferred upon all students who successfully complete the Course.

The degree of Master of Science in Agriculture is conferred upon graduate students who have successfully completed at least one year of graduate work and submitted a satisfactory thesis.

Graduate Work:

The College of Agriculture fosters and encourages graduate work. Each technical department offers advanced Courses leading to graduate degrees. The demand for thoroughly trained investigators and teachers is rapidly increasing and the graduate department aims to give the thorough training desired.

COURSES IN DETAIL.

[Courses designated by a number with the letter a attached, thus: 4a, 6a, are given the first semester only. Those designated by a number with the letter b attached, thus: 4b, 6b, are given the second semester only. Those designated merely by a number are continuous courses and are given both semesters. Short Winter Courses are indicated by the letter w after the number.]

Agriculture.

Professor MUMFORD; Dean WATERS; Dr. TUCKER; Assistant Professor FORBES and Mr. HARPER.

The instruction in this subject is thoroughly practical, and is intended to give a knowledge of the application of the natural sciences to the complex operations of Agriculture. Lectures and recitations are supplemented by practical demonstrations on the farm.

The instruction in Agriculture is divided into Agronomy and Animal Husbandry as indicated in the following outline.

Agronomy.

Profesor MUMFORD and *Dr. TUCKER.

1a. Agronomy. A. *Soils.* A study of the origin, formation, distribution, and classification of soils with reference to their agricultural value; the conditions of fertility and the circumstances that influence it; indications of fertility; barren and exhausted soils; improvement of soils; physical properties of soils, including their relations to air, water, and heat; capillarity, diffusion, and solution, as related to soil texture; farm

*Resigned.

drainage, including methods of construction; irrigation, tillage, plowing, subsoiling, harrowing, etc. B. *Fertilizers*. Constituents of plants; sources and specific action of the various elements of plant food; crops and materials used as fertilizers; methods of farming in relation to the conservation of fertility. Two lectures and one laboratory period a week. M. W. F., at 8:30. Dr. TUCKER. Freshman.

2b. Agronomy. *Farm Crops*. Plant breeding; variation, selection, self and cross fertilization; practical methods for increasing the yield of crops; conditions of germination and plant growth; rotation of crops; planting, growing, harvesting, and storing crops. The results of experiments at the Station are used in discussing the best methods of culture. The Missouri Experiment Station offers excellent opportunities for the illustration of this work. M. W. F., at 8:30. Dr. TUCKER. Freshman.

(Courses 1a and 2b are elective for students in the Department of Education who are candidates for the Life Certificate.)

3a. Advanced Agronomy. Soil types and their relations to special crops as indicated by mechanical analysis, and influence of fertilizer materials, manures, acidity, alkalinity, tillage, and crops on texture and available plant food with special reference to Missouri Agriculture. Students may use soils from their home farms in this work. *Three times a week*. Dr. TUCKER. Elective.

4b. Advanced Agronomy. A study of special crops; methods of improvements by cultivation, seed selection and breeding; includes a study of approved methods and applying them to growing crops. *Three times a week*. Dr. TUCKER. Elective.

5. Seminary Work. Reading and discussion of recent and special investigations in the subject of Agronomy. Original papers upon assigned topics will be presented for discussion. Each student will be expected to contribute at least four such papers during the year. A reading knowledge of French and German is recommended. *Once a week*. Dr. TUCKER. Elective.

7a. Agricultural Engineering. Construction of barns, stables, and other shelters; plans for building silos, fences, etc. Road building is considered with special reference to country roads. Attention is given to the mechanics of farm implements and machines, and for this purpose a new self-registering dynamometer has been provided. There is also a model of a horse arranged for determining by experiments the influence on draft of direction of traces, weight of horse, strength of hock muscles, etc., and an appliance for measuring the resistance to tractive force of incline and obstruction. T. Th. S., at 10:30. Dr. TUCKER. Junior.

8w. Soils. The origin, formation, and distribution of soils. Their

chemical and physical properties as related to fertility. Classification of soils with relation to the ways in which they are affected by water, air, and heat. Dr. TUCKER.

9w. Fertilizers and Manures. The best method of preserving and applying farmyard manures; the relative values of different manures and fertilizers; the use and application of commercial fertilizers, lime, and plaster; the manurial value of crops, and the methods of using them to maintain soil fertility. Dr. TUCKER.

10w. Farm Crops. Conditions of germination and plant growth; special requirements of the different farm crops; rotation, cultivation, harvesting, and storing of crops; best varieties of corn, wheat, etc., for Missouri; some discussion of promising new crops, especially fertilizing crops—cow peas, soy beans, alfalfa, etc. The College farm and experimental grounds comprise nearly 600 acres of well improved land on which many experiments illustrating various methods of farm management are made. Dr. TUCKER.

11w. Farm Equipment. Uses and values of construction material for farm buildings. Plans for general barns. Special horse, cattle, and sheep barns, swine pens, and poultry houses. Demonstration of various mechanical problems of farm machinery, including the principles of draft. Dr. TUCKER.

Primarily for Graduates.

6. Research and Experiment Work on Soils and Crops. This is a course including pot experiments and laboratory work for the solution of problems of universal importance. The Experiment Station fields and the work of the U. S. Soil Survey as well as the co-operative experiments between the Missouri Experiment Station and the U. S. Department of Agriculture, offer special advantages to the student graduate.

Animal Husbandry.

Professor MUMFORD; Assistant Professor FORBES; Mr. HARPER.

1a. Live Stock Judging. A study of animal form and character, especial attention being given to the market classes and grades of live stock and also to the indications of feeding quality, constitutional vigor, sexuality, capacity for the production of meat, milk, wool, work and speed, and for sustained usefulness. M. W. F., 1:30-4. Assistant Professor FORBES and Assistant HARPER. Required. Sophomore.

2b. Principles of Feeding. The laws of animal nutrition; composition of the animal body; fodders; the sources of nutriment; digestion, re-

sorption, assimilation, circulation, respiration and excretion; formation of muscle and fat; composition, digestibility, value, preparation and use of feeding stuffs; feeding for fat, milk, wool, work and growth. T. Th. S., at 10:30. Assistant Professor FORBES. Required. Sophomore.

3a. Principles of Breeding. A treatment of the principles and practices of stock breeding, much attention being given to such subjects as variation, heredity, selection, atavism, in-breeding, cross-breeding, grading, the process of fertilization, the evolution and significance of sex, and other kindred topics. This Course is calculated to give to the student a working knowledge of the science and art of animal breeding. M. W. F., at 9:30. Assistant Professor FORBES. Required. Sophomore.

4a. Breeds of Live Stock. History, development and characteristics of the leading breeds of live stock; pedigrees and performances of superior individuals among horses, cattle, sheep, swine and jack stock. T. Th. S., at 9:30. Assistant Professor FORBES. Elective.

5b. Beef, Pork and Mutton Production. A study of practical methods in the management of meat producing animals, including a consideration of successful practices in feeding for market, fitting for show, and the general care and management of working herds and flocks both of pure bred and grade stock. T. Th. S., at 9:30. Assistant Professor FORBES. Elective.

6b. Advanced Stock Judging. Animal measurement; the statistical study of animal form, function and performance; the systematic measurement, tabulation, study and interpretation of the characters of our domestic animals. This Course is calculated to give to the student that exact and intimate acquaintance with the details of animal form and function which is essential to the highest success in selection and breeding. Two laboratory periods a week. Assistant Professor FORBES. Elective. Required Animal Husbandry 1a. Graduate and undergraduate.

7a. Experimental Breeding. Original research and experimentation. A suitable breeding laboratory has been provided in which actual experiments will be in progress. The unsettled problems of breeding, such as the relative influence of parents, telegony, in-breeding, influence of age on prepotency, etc., will be investigated. Professor MUMFORD. Elective. Graduate and undergraduate.

8. Seminary Studies. Assigned reading bearing on selected lines of work in Animal Husbandry, together with the preparation and presentation of papers for discussion by the class. *Once or twice a week.* Professor MUMFORD. Elective.

9w. Stock Feeding. The composition and digestibility of feeding stuffs; the preservation and preparation of coarse fodders; grinding, steaming and cooking food; feeding standards and the calculation of rations;

feeding for meat, milk, wool, fat, growth and work. Assistant Professor FORBES.

10w. Stock Breeding. The principles of breeding, heredity, variation and selection, the methods of grading, in-breeding, cross-breeding, and line breeding; special problems such as the influence of environment on fecundity, influence of previous impregnation and the possibility of controlling the sex of offspring. Professor MUMFORD.

11w. The history and development of the leading breeds of horses, cattle, sheep and swine, their pedigrees and performances. Assistant Professor FORBES.

12w. Stock Judging. Practical work in judging horses, cattle, sheep and swine. Assistant Professor FORBES and Assistant HARPER.

NOTE.—Courses marked w are offered to students in the Short Winter Course only.

Agricultural Chemistry.

Professor SCHWEITZER; Dr. BIRD.

1a. Agricultural Chemistry. General introduction; functions of the plant, including production, conversion, transportation, deposition of organic matter; physiological structure of the cell; respiration; the green cell, an apparatus for doing work dependent upon light and heat; nitrogenous constituents of the plant and their relation to free and combined nitrogen; mineral constituents; membranous diffusion; assimilation; conditions of vegetation. T. Th. S., at 11:30. Junior.

2b. Agricultural Chemistry. Soil—its formation, composition, alteration by mechanical, chemical, biological agencies; its relation to light, heat, and moisture. Soil physics in general. Manures, natural and artificial—their composition, application, value. Theory of rotation of crops; extensive and intensive cultivation; industrial agriculture in general. Farm sanitation; air, respiration, vitiated air, and ventilation, infection, contagion, germ theory of disease. Water—potable water, hard and soft; impurities in it, and their effects upon health and life. Food—composition and general properties; preservation of food; and food adulterations. T. Th. S., at 11:30. Junior.

3. Course for Graduate Students. As a major subject toward the degree of Master of Science in Agriculture the following Course is offered to those who have fulfilled the preliminary requirements given below and elsewhere in this Catalogue:

A. Systematic practice in selected refined methods of ultimate and proximate analysis of agricultural products; e. g., the ash of plants, soils, fertilizers, plant constituents, foods, milk and milk products, adulterants, insecticides, etc.

B. The preparation of a series of summaries of methods of work and results of important researches which have been carried out in the past or are in progress at the time, in the field of Agricultural Chemistry. The intent of this is to teach the student how to use a library and to force him to see how problems are attacked, as well as other manifest good results.

C. The carrying out of an investigation and the preparation of a thesis based upon it.

An effort will be made to assign one or more subjects under "B" which ought to suggest problems for investigation; one of which should furnish the data for a thesis, required under "C."

The work outlined is strictly a course of Applied Chemistry. It is designed to train men to investigate the Chemical-agricultural problems which confront the Experiment Stations throughout the country. The work upon analytical methods is purely incidental to this aim. In order to begin it, the student must have completed the equivalent of the undergraduate work offered by the department of Chemistry of this University in General Chemistry, Qualitative and Quantitative Analysis, and the shorter course in Organic Chemistry as well as the course in Agricultural Chemistry given in 1a and 2b, above. If the undergraduate work has been suitably selected, this Course can be completed in one year after graduation.

Botany.

Professor DUGGAR; Mr. REED; Mr. BROOKS.

For Undergraduates.

1a. General Botany. The first half of the semester is devoted to a study of cell structure and the fundamental principles of plant physiology. The student is taught to set up experiments and to keep a record of observations on plant activities. In the second half of the semester a representative series of cryptogams is studied. Lecture, T., at 10:30; Laboratory, Section I, T. Th., at 1:30-4; Section II, W. F., at 1:30-4. Professor DUGGAR; Mr. REED; Mr. BROOKS.

2b. General Botany. This Course continues the study of representative groups begun in 1a, dealing with the embryology and anatomy of certain gymnosperms and angiosperms, concluding with some general work in ecology. Lecture, T., at 10:30; Laboratory, Section I, T. Th., 1:30-4; Section II, W. F., 1:30-4. Professor DUGGAR; Mr. REED; Mr. BROOKS.

6. Mycology. Studies in the morphology and physiology of representative groups of fungi. In this Course special attention is also given to culture methods, pathological work with fungous diseases, and the collection and preservation of fleshy fungi. Lecture, Th., 8:30; Laboratory, W. F., at 1:30-4. Professor DUGGAR; Mr. BROOKS.

9b. **Advanced Physiology.** Lectures and experimental work relating to nutrition and growth, the effects of stimuli and toxic agents on cell activities and development, also variation and inheritance. *Three times a week.* Hours by appointment.

11w. A short course in Botany for winter students in Agriculture. Lectures on the fungous diseases of cultivated plants (rusts, smuts, mildew, etc.), with means of prevention. The physiological principles of plant production.

The foundation work in Botany is offered through Courses 1a and 2b; and these Courses or their equivalents are prerequisites for all other regular work in the subject. They represent a continuous treatment of general principles.

For Graduates.

The graduate work in botany for students in the College of Agriculture is exactly the same as in the Academic Department. With proper preparation any work may be elected.

Climatology.

Mr. HACKETT.

1a. This Course is intended more especially for Agricultural students, but is open to all. It consists of a study of the averages and extremes of temperature and rainfall in the United States; the normal relative humidity; relation of relative humidity to sensible temperature; normal cloudiness; average dates of last killing frost in spring and first in autumn, and other important climatic features.

Dairy Husbandry.

Assistant Professor ECKLES.

1b. **Elements of Dairying.** This Course includes two lectures and one laboratory period a week. The lectures treat of the secretion and composition of milk and the causes of variations; the Babcock test applied to milk, and other products; use of the lactometer; the various methods of cream raising, including a study of the centrifugal separators; the ripening of cream; modern methods of making and marketing butter; judging quality of butter; proper handling of milk on the farm; the relation of the factory and private dairy to the farmer. The laboratory work includes testing milk and other dairy products, separating cream and making butter. T. Th. S., 1:30-4. Sophomore.

2a. **Factory Butter-making.** This Course consists of one lecture and two laboratory periods a week. It includes a study of the modern factory systems in detail, including a careful study of testing milk and its pro-

ducts under varying conditions; ripening cream; use and propagation of artificial and natural starters; churning and working butter; the business management of the factory. The practical work will be along the line of the lectures, including such as will best acquaint the student with the operation of a modern factory. Hours to be arranged. Elective.

3b. Cheese-making. This Course will include five hours, two days per week, and will count as a four hour study. One hour a week of this period will be given to lectures on the methods and theories of cheese-making which will be put into practice in the laboratory. M. W. F., 9:30-12:30 and 1:30-3:30. Elective.

4a. Dairy Bacteriology. One hour a week will be given to lectures on the contamination of milk and its control, normal and abnormal fermentations and their relation to dairying, milk as a means of spreading disease, the relation of fermentations to butter-making and cheese-making, and the propagation and use of pure cultures and natural starters. The laboratory work will be a study of the means by which milk becomes contaminated; the isolation and study of a number of common organisms; a careful study of the acid fermentation, ropy milk, bitter milk, and other common types; estimating number of bacteria in milk; effect of certain species on butter and cheese. M. W. F., 1:30-3:30. Elective.

5b. Dairy Farming. This Course covers the field of dairying in its relation to the producer rather than the manufacturer. The selection, breeding and building up of a dairy herd are considered; the proper care under different conditions; the growing of crops with the dairy as the center of the system; the use of the silo; special problems of feeding for milk-production; marketing dairy products; the use of by-products from the dairy. Hours to be arranged. Elective.

6b. Dairy Farming. The selection, breeding, and building up of a dairy herd, growing crops for the dairy, use of the silo, problems of feeding for milk production, marketing dairy products, use of by-products from the dairy. Hours to be arranged. Undergraduate and Graduate.

7a. Dairy Bacteriology. Lectures and laboratory work. Contamination of milk, normal and abnormal fermentations, and relation to dairying; use of pure cultures and starters; spread of diseases by milk. *Three times a week.* Hours to be arranged. Undergraduate and Graduate.

8. Dairy Bacteriology. This will be laboratory investigation of certain problems of bacteriology in relation to dairying, the object being chiefly to give training in methods of research in this line. The work will be adapted largely to the individual student. Graduate.

9. Investigations of unsolved problems in butter and cheese-making. This will be chiefly laboratory work and will be arranged to suit the needs of individual students. Graduate.

Drawing.**Mr. ROLLINS.**

1a. Agricultural Drawing. This work is arranged so as to be of special value to the farmer in designing buildings and machinery and in planning repairs on the farm. It embraces freehand drawing and shading, projections, geometric designs and constructions, working drawings, tracing, and blue printing. T. Th. S., at 1:30. Sophomore. Elective for Academic students who are candidates for the Life Certificate in the Department of Education.

Entomology.**Professor STEDMAN.**

The instruction in Entomology is given by lectures supplemented by laboratory and field work. The lectures cover the external and internal anatomy, life histories, habits, economy, and classification of insects; the characteristics of the orders, sub-orders, and principal families. Special emphasis is placed upon those insects of economic importance, and the best methods of combating their ravages. The laboratory work embraces the study, by means of actual specimens, of the internal and external anatomy, life histories, habits, economy, breeding, identification, or determination of genera and species, and the classification of those insects found in our fauna; and also economic work and original investigation for advanced students.

The following Courses are offered:

1. General Entomology. For Academic students only. (1) Lectures. Internal and external anatomy, life histories, habits, economy, characteristics, classification, methods of destruction, mimicry, dimorphism, analysis. W. F., at 10:30. (2) Laboratory work, collecting, preserving, breeding methods, habits, life histories, work, external anatomy, identification, or determination of orders, families and genera, classification. M., 1:30-4.

2a. Economic Entomology. For Agricultural students only. Lectures and laboratory work. Anatomy, development, work, life histories, habits and ecology with special reference to the beneficial and injurious species, methods of combating them, preparation and use of insecticides, machines for applying, determination of species. T. Th. S., at 10:30.

2w. Economic Entomology. (For students of the Short Winter Course.) See special Catalogue to be issued in September, 1904.

3. Advanced Entomology. Lectures and laboratory work. Internal anatomy, histology, physiology, embryology, breeding, life histories, habits,

economy, distribution, dimorphism, mimicry, determination of species, classification. Must be preceded by Course 1 or 2a. Hours to be arranged. Elective.

4. Graduate work in Entomology. Laboratory work. Monographing a group (scientific); monographing a species (scientific and economic). Must be preceded by Course 3. Hours to be arranged.

All courses in Entomology are elective for Academic and other students. Agricultural students may elect Course 3 in the Junior or Senior year, and Course 4 in the Graduate years.

Horticulture.

Professor WHITTEN; Mr. HOWARD; Mr. FAVOR.

1a. Orcharding. Lectures, required readings, with observations and demonstrations in the orchard. The propagation, transplanting, cultivation, pruning, gathering and marketing of orchard fruits, together with spraying for fungous diseases, are the principal topics discussed. M. W. F., at 8:30. Professor WHITTEN; Mr. HOWARD.

2b. Small Fruits and Vegetable Gardening. Lectures, assigned readings and observations in the garden. This Course will consist of the study of small fruits and garden vegetables. In connection with the fruits, the planting, cultivating, harvesting and marketing, as well as spraying, will be considered. With the vegetables attention will be given to forcing and market gardening, as well as other cultural features. M. W. F., at 8:30. Professor WHITTEN; Mr. HOWARD.

3a. Plant Propagation. A consideration of the methods by which plants are propagated in nature, as well as under culture; grafting, budding, making cuttings, separation, layering and nursery practice; seedage, including the preparatory treatment of refractory seeds, and the nursery management of seedlings. T. Th. S., at 8:30. Professor WHITTEN; Mr. HOWARD.

4b. Greenhouse Construction and Management. Lectures and required readings. The construction, uses and management of forcing houses, hotbeds and cold frames. M. W. F., at 9:30. Professor WHITTEN, and Mr. HOWARD. Elective.

5b. The Evolution of Cultivated Plants. Lectures and assigned readings. A study of organic evolution as applied to the modification of plants, particularly those in cultivation. Hours to be arranged. Professor WHITTEN.

6a. Forestry. Lectures. In this Course are considered the influence of forests on climate, soil and the flow of streams; the management of

forests; the characteristics and uses of typical wood; the specific character of our principal forest trees in their winter condition; and some of the forest geography of the country. Hours to be arranged. Mr. HOWARD. Elective.

7b. Landscape Gardening. Lectures, readings and out-of-door observation. Principles underlying the ornamentation of public and private grounds. Hours to be arranged. Professor WHITTEN and Mr. HOWARD.

(Three courses in Horticulture are prescribed. They may be selected from among Courses 1a, 2b, 3a, 5b and 7b.)

8. Special Investigation. This Course is intended for graduates and advanced students. Special topics for investigation will be assigned. Hours by appointment. Professor WHITTEN; Mr. HOWARD. Elective.

9w. General Horticulture. (The Short Winter Course in Agriculture.) The propagation, transplanting, cultivation, gathering, marketing and general management of fruits and vegetables. Professor WHITTEN; Mr. HOWARD and Mr. FAVOR.

Shopwork.

Mr. COOK; Mr. DUNCAN; Mr. BAENDER; Mr. SPAHT.

1. Wood-work, Forging, Turning.

Wood-work: The required exercises illustrate the various joints and typical operations of carpentry and joinery, and give the student familiarity with the use of the ordinary tools.

Forging: This work includes welding, tempering, case hardening, annealing, etc., and also the study of the metallurgy of iron and steel.

4. Manual Training. I. This Course covers the various kinds of hand work, designed to be taught in the first six grades of the public schools, which may be given by the regular grade teacher with inexpensive equipment and material. It fulfils the requirements of the three hours of industrial work for the Life Certificate in the Department of Education and embraces: clay modeling, basketry, bent iron work, weaving, cardboard work, whittling sloyd.

(a) Clay Modeling—Pottery: This covers the manipulation of clay into representative forms familiar to children, with the developing into well-known Indian pottery, basketry, as well as the vase forms. A china kiln for the firing of these models is provided.

(b) Basketry: This consists of the braiding, sewing and coiling of raphia into table mats, baskets, etc., together with the weaving of reed or rattan into various useful and ornamental baskets. Colored material is employed to adapt the course to the study of color harmony.

(c) **Bent Iron Work:** This work is well adapted to the fifth and sixth grades. Such models as candlesticks, brackets, easels, picture frames, simple bridges, etc., are worked out.

(d) **Weaving:** This covers the spinning of yarn, the warping and weaving of small blankets or rugs on a hand loom constructed by the student.

(e) **Card-Board Work:** This well established Course includes exercises especially interesting and valuable to children.

(f) **Whittling Sloyd:** This covers the cutting and fashioning of thin woods into useful and ornamental shapes, and is supplemented by a limited amount of work at the bench to give the student a familiarity with the common tools. Course 4 is intended to precede Course 5, although both may be taken at the same time. T. Th. S., 9:30-12.

5. **Manual Training. II.** This Course is intended to prepare teachers for the upper grammar grades and high schools. The student receives credit for this work toward a Life Certificate. Bench work in wood, together with the care of tools, is strongly emphasized. The models are of individual interest and may consist of simple structural elements or the more complicated furniture forms such as chairs, stools, book-cases, etc. Decoration by means of color, carving, pyrography, etc., is encouraged, and a special study of stains, varnishes and paints is made. The scope and application of manual training are discussed in weekly conferences of one hour each throughout the year. Students who have not had simple mechanical drawing are urged to take either constructional freehand or mechanical drawing in connection with this Course. In addition to this work a Course of lectures on Applied Design will be offered.

6w. An elementary Course designed for students in the Short Course in Agriculture. It consists of carpentry, forging, pipefitting, sawfiling, given in such a way as to afford the broadest experience in the shortest time. T. Th., 4-6; M. W., 4-6.

Veterinary Science.

Professor CONNAWAY; Dr. FOSTER.

1a. **The Anatomy, Physiology, and Hygiene of domesticated animals.** This Course is given by lectures and laboratory work, the latter consisting of the complete dissection of one or more animals, and a comparative study of such organs as show variations in the different species. Charts, models, and prepared specimens will also be available for illustrating this study. Practical demonstrations will be given in the physiological laboratory of the more important functions of the animal body. The study of

food stuffs and the action of the digestive fluids will receive special attention. T. Th. S., 1:30-4. Junior.

2b. Veterinary Medicine and Surgery. The first half of the semester is devoted to the study of the common diseases that affect the internal organs; lungs, stomach, intestines, urinary organs, etc.; the second half of the semester is given to the study of the diseases and conditions that require surgical treatment, such as lameness, wounds, abscesses, tumors, etc. A clinic is held one afternoon of each week for the treatment of the diseases discussed in the class room. In proper season instruction is given in castration, spaying, and caponizing. T. Th. S., 1:30-4. Junior.

3a. Contagious, Infectious, and Parasitic Diseases. This Course will include the study of influenza, strangles (distemper), glanders, black-leg, anthrax, tuberculosis, Texas fever, actinomycosis (lump jaw), swine plague, hog cholera, and internal and external parasitic diseases, such as tape worm in lambs, verminous bronchitis, scabies, etc. Practical exercises are given in disinfection of stables, and in preventive inoculation. Lectures on national and state quarantine regulations will be given by the State Veterinarian. M. W. F., at 1:30. Senior. Elective.

4. Experimental Study of the Contagious and Infectious Diseases of farm animals, such as tuberculosis, glanders, hog cholera, Texas fever, rabies, etc. The student will make inoculations, study and record clinical phenomena, make post-mortems, preserve the diseased tissues and study them microscopically. A study of the literature of each disease is also required. Open to graduate veterinarians, who may be interested in inspection and quarantine work; also to Agricultural and Medical students who have completed the required work in Histology, Physiology, Bacteriology and Pathology offered in the Medical Department. Graduate.

5. Experimental Study of Veterinary Remedies. This Course is intended for Veterinary practitioners who desire to make a study of the physiological action of medicines on the various farm animals, as well as a study of therapeutic action. Graduate.

6. Investigation. Students who have suitable preparation will have an opportunity to assist in the Experiment Station work. Graduate.

7w. An Elementary Course in Veterinary Science, dealing principally with the hygiene of farm animals, and the treatment of simple ailments is given for the benefit of the students attending the Short Winter Course in Agriculture. Three lectures and 1 clinic a week for eight weeks.

Rural Economics.

Professor POPE.

4a. Agricultural Economics. This Course treats of those principles which underlie the prosperity of the farmer and all other classes in so far

as they are dependent on agriculture. In part one the general phases of the agricultural industry are dealt with. Such questions are taken up as: history of agricultural industry; agricultural resources of the world; physical conditions affecting agriculture; the agricultural market; transportation of agricultural products; agricultural labor; farm ownership and tenancy, mortgages, etc.; business co-operation in agriculture. Part two treats of the relation of agriculture to other industry, and to the industrial order; the relation of legislature to agriculture. Two hours a week, hours to be arranged. Elective.

B. THE AGRICULTURAL EXPERIMENT STATION.

BOARD OF CONTROL:

The Curators of the University of Missouri.

ADVISORY COUNCIL:

The Missouri State Board of Agriculture.

OFFICERS OF THE STATION.

R. H. JESSE, LL. D.	President of the University
*H. J. WATERS, B. S. A.	Director
F. B. MUMFORD, B. S., M. S.	Animal Breeding—Acting Director
PAUL SCHWEITZER, Ph. D.	Chemist
J. C. WHITTEN, M. S., Ph. D.	Horticulturist
J. M. STEDMAN, B. S.	Entomologist
J. W. CONNAWAY, D. V. S., M. D.	Veterinarian
B. M. DUGGAR, A. M., Ph. D.	Botany
R. M. BIRD, A. M., Ph. D.	Assistant Chemist
C. H. ECKLES, B. Agr., M. S.	Dairy Husbandry
E. B. FORBES, B. S., B. S. A. ...	Assistant Professor of Animal Husbandry
GEO. M. TUCKER, A. M., Ph. D.	Agronomy
W. L. HOWARD, B. S.	Assistant Horticulturist
MERRITT W. HARPER, M. S.	Assistant in Agriculture
E. H. FAVOR, A. B.	Assistant in Horticulture
†A. E. HACKETT	Section Director Missouri Weather Service
JOHN SCHNABEL	Gardener
J. G. BABB, A. M.	Secretary
R. B. PRICE	Treasurer
ESTELLE HICKOK	Clerk

*On leave of absence.

†In the service of the U. S. Government.

This Station was established by the act of Congress of 1887, and by the acts of the General Assembly of Missouri accepting its provision. By an order of the Board of Curators of the University it was made a division of the College of Agriculture.

The special function of the Experiment Station is to conduct original research in the various branches of Agriculture. At this time investigations are in progress relating to the maintenance of soil fertility, the renovation of worn out soil, the most efficacious rotation of crops, the adaptability of new plants to Missouri's soil and climate, the most economical methods of beef and pork production; dairying and dairy feeding, animal diseases, their origin and prevention or cure; animal and plant breeding; the propagation, selection, breeding and improvement of fruits and vegetables; tests of varieties of orchard and small fruits; insect pests, fungous diseases, etc.

The Station uses such parts of the College Farm, Horticultural Grounds and the equipments of the College and University as are needed for its investigations. The results of these investigations are published in the form of Bulletins and Annual Reports which are distributed free to all who express a desire to have them.

The Station is provided with an outfit of meteorological instruments, and daily observations are made by an officer of the United States Weather Bureau.

C. SCHOOL OF ENGINEERING.

Requirements for Admission:

For information in regard to requirements for admission, see page 43.

Tuition, Charges and Fees:

For information in regard to tuition charges, fees, scholarships, etc., see pages 60-66.

Degrees:

The five Courses offered below lead respectively to the degrees of Bachelor of Science in Civil Engineering, Bachelor of Science in Electrical Engineering, Bachelor of Science in Mechanical Engineering, Bachelor of Science in Sanitary Engineering and Bachelor of Science in Chemical Engineering.

The degrees of Civil Engineer (C. E.), Electrical Engineer (E. E.), and Mechanical Engineer (M. E.), will be conferred on candidates who, after receiving the first degree from this University or one of equivalent standing, have spent in the same course one year (at least ten hours a

week) in graduate work in the University, or two years in professional practice and in graduate work *in absentia*. The candidate must pass an examination on his graduate work and present a satisfactory thesis. The thesis subject shall be presented to the Committee on Graduate Degrees on or before Nov. 1, and the thesis shall be presented to the same Committee on or before May 1, of the given year. Those who with professional practice pursue graduate work *in absentia* must be regularly enrolled as a graduate students, paying the usual fees.

COURSES OF INSTRUCTION IN ENGINEERING.

Civil Engineering.

The field covered by this Course is a very wide one, embracing topographical, railway, hydraulic, structural, municipal, and sanitary engineering, and it is the aim to give a broad general training which may later serve as a foundation for the development of any of the special lines of practice included under the general term, Civil Engineering.

The Course has, therefore, been arranged with the purpose of providing thorough training in those fundamental sciences and principles upon which the practice of the civil engineer is based, and also, in so far as practicable, of giving instruction in the special subjects which underlie the several branches.

For tabulated statement of the Course in Civil Engineering, see next page.

Hours.

S., 8:30; V. M. W. F., 11:30
W. F., 11:30

S., 9:30; V. T. Th. S., 11:30
M. W. F., 10:30.

F., 8:30; V. M. W. F., 11:30
T. Th. S., 11:30.

F., 1:30-4; V. T. Th. S., 11:30
T. Th. S., 9:30-12.

F., 1:30-4; V. T. Th. S., 11:30
T. Th. S., 9:30-12.

, 8:30, F., 8:30-11; V. M. W.
S., 8:30-11; VI. T. Th., 8:30

10:30.
1:30-4; V. T. Th., 8:30-11

F., 1:30-4.
1:30-4; V. T. Th., 8:30-11;

S., 1:30-4.
W., 9:30; IV. Rec. F., 10:30

Th, 10:30-12; V. Rec. F., 9:
M. F., 1:30-3; VI. Rec. F.,

Ab. T. Th., 1:30-3.

30-12; IV. M., 9:30-12.
30-4.

V. F., 9:30-12; IV. T. Th. S.
V. F., 9:30-12; IV. T. Th. S.

30.
T. Th., 10:30, Rec. T. Th.,

Lab. T. Th., 1:30-4; IV. Lect
10:30, Rec. W. F., 11:30

W. S., 1:30-4.

F., 8:30; Rec. I. T. Th. S.,
Rec. II. T. Th. S., 9:30.

30-5, S., 1:30-2:30.

0:30. Observatory hours to
anged.

S., 9:30; II. T. Th. S., 11:30
30.

1:30-4.
4; II. Th., 1:30-4.

30.

30.
1.

1:30-4.
11:30.

8:30-12.
9:30.

1:30-4.

30.
8:30.

Electrical Engineering.

This Course fits students for electrical designing, manufacturing, contracting, and for the installation and management of light and power stations; in short, it is a thorough, broad training for Electrical Engineers.

The first two years are devoted to preliminary training in the languages, mathematics, the sciences, and in drawing and shopwork. The technical work comes in the last two years and consists of the theory and principles of electricity and magnetism; electrical measurements; calibration of instruments; tests of all kinds; design and construction; study of special problems in the generation, transmission, and distribution of electrical energy.

Special attention is paid to alternating current phenomena.

Instruction is given by means of recitations, lectures, and laboratory work, thoroughly correlated and arranged.

The apparatus is new, from the best makers, and includes instruments for electrical measurements of precision, a storage battery conveniently arranged for testing, an electric light plant, various types and sizes of direct and alternating current dynamos and motors, measuring instruments, etc.

For tabulated statement of the Course in Electrical Engineering, see the next page.

No. Course.	Subject.	Semester.		Hours.
		I.	II.	
Freshman Year.				
Math. 1....	Trig., Solid Geom. and An. Geom.	3	3	I. M. W. F., 8:30; II. M. W. F., 11:30; III. T. Th. S., 8:30; VI. M. W. F., 10:30.
Math. 2....	Advanced Algebra.....	3	....	I. T. Th. S., 9:30; II. T. Th. S., 11:30; III. T. Th. S., 2:00; VI. T. Th. S., 11:30.
C. E. 1....	Ele. Surveying .....	....	3	I. T. Th. S., 9:30-12; II. M. W. F., 1:30-4; III. T. Th. S., 1:30-4; VI. T. Th. S., 9:30-12.
English 1..	Composition and Rhetoric	3	3	I. T. Th. S., 8:30; II. M. W. F., 8:30; III. M. W. F., 8:30; VI. M. W. F., 11:30.
Chem. 2....	General Inorganic Chem.	3	3	Lect. M. W. F., 9:30; I. M. W. F., 10:30-12; II. F., 9:30; T. Th., 1:30-4; III. M. W. F., 10:30-12; VI. F., 8: 30; T. Th., 1:30-3.
Drawing 1.	Descriptive Geometry...	3	3	I. T. Th. S., 1:30-4; II. T. Th. S., 8: 30-11; III. M. W. F., 1:30-4; VI. T. Th. S., 3-5:30.
Shopwork 1	Woodwork and Forging..	3	3	I. M. W. F., 1:30-4; II. T. Th. S., 2: 5:30; III. T. Th. S., 9:30-12; VI. M. W. F., 1:30-4.
Sophomore Year.				
Math. 16...	Analytical Geometry and Calculus.	6	6	I. Daily, 11:30; II. Daily, 9:30.
Physics 3..	General Physics.....	6	6	I. Lect. T. Th., 10:30; T. Th., 8:30; W. F., 8:30-11; II. Lect. W. F., 10: 30; W. F., 8:30; M. F., 1:30-4.
Drawing 2.	El. of Machine Drawing..	1	1	I. M., 8:30-11; II. W., 1:30-4.
Shopwork 2	Machine Work.....	2	2	I. M. F., 1:30-4; II. T. Th., 1:30-4.
M. E. 1....	Steam Engineering.	3	....	{ I. T. Th. S., 9:30; II. T. Th. S., 11:30
M. E. 2....	Kinematics.....	....	3	
Junior Year.				
Mech. 3....	Mechanics of Engineering	5	5	{ I. and II. W. F., 8:30. I. T. Th. S., 8:30. II. M. W. F., 9:30.
Physics 4..	Electrical Measurements..	3	3	M. W. F., 1:30-4.
E. E. 1....	Electrical Machinery... ..	3	3	I. T. Th. S., 1:30-4; II. W. F., 9:30- 12; S., 1:30.
E. E. 2....	Alternating Currents....	3	3	T. Th. S., 11:30.
E. E. 3....	Seminary.....	1	1	W., 4.
Senior Year.				
E. E. 4....	Electrical Design.....	3	3	M. W. F., 8:30-11.
E. E. 5....	Alternating Currents.....	3	3	M. W. F., 1:30-4.
E. E. 6....	Electrical Transmission, Distribution	3	3	M. W. F., 11:30.
E. E. 7....	Seminary	2	2	W. Th., 8.
E. E. 8....	Thesis.....	....	2	T. Th., 8:30-11.
M. E. 9....	Hydraulic Motors	2	....	T. Th., 9:30.
M. E. 10...	Mechanical Laboratory...	2	2	T., 1:30-6.

Mechanical Engineering.

This Course, of four years, is intended to fit students to enter readily any of the principal divisions of Mechanical Engineering. The aim of the work is to make the student self-reliant and to that end he is required to solve original problems in design and in the laboratory, and to arrange, set up and adjust the apparatus used in his experiments. He is trained in the underlying principles of the profession, all work being so arranged that the application of these principles to special problems, which may arise in practice, may be clearly seen. The design of engineering structures and machines and the development, application and measurement of power in its various forms are covered in the different courses. The instruction is carried on principally by the aid of text-books and laboratory work, lectures being used only to supplement the text-book. In the classroom definite problems are given for solution, which problems in most cases are taken from practice. The department is equipped with an excellent working library of technical books and the reading room is supplied with the best Engineering magazines. The new Engineering laboratory has been equipped with steam, gas and oil engines, pumps, injectors, air compressors, fan blowers, turbines, hoisting appliances and apparatus for testing these and standardizing instruments. This apparatus will familiarize the student with the use and care of these machines as well as with the theoretical principles underlying their design, construction and use. In equipping the laboratory it has been the aim to select the apparatus so as to bring the student in contact with most of the modern forms or types of machines for developing and measuring power and to have him make most of the tests which a Mechanical Engineer is called upon to make as well as to develop the ability to attempt original investigations or tests. The Power Plant of the University is used at times by the students for the purpose of making tests.

The outline of the courses given below shows the division of the work and the description of the courses gives the main features of each. The first two years are mainly preparatory, instruction being given in English, Mathematics, Physics, Chemistry, Drawing and Shopwork to prepare the student for the technical work of the last two years. In the last years the work is mainly in this department, certain allied work being given by the departments of Civil and Electrical Engineering.

Hours.

8:00, 11. M. W. F., 8:00
P., 8:30.

11 M. W. F., 11:00
S. 8:00.

11 T. Th. S., 11:00
S. 8:00.

11 T. Th. S., 8:00
W. P., 1:00-4.

11 T. Th. S.,
T. S., 8:00-12.

11 Rec. F. 10:00
10:00-12, 11 Rec. F.

T. Th. 1:30-2, 11
10 Lab. M. W., 10:50-11.

11 M. F. W.
T. S., 1:00-4.

11, 8:00
T. S., 10:00; Rec. T. Th.

W. P., 8:00-11, 11 Lab.
11 Rec. W. F. 8:00; Lab.

11 W., 1:00-4.

11 T. Th. 1:00-4.

11 T. Th. S., 11:00
11 T. Th. S., 11:00.

W., 8:00; P., 10:00-12:00.
10:00-12:00.

10:00-12:00.

8:00.

W., 10:00-12:00; Rec.
10:00-12:00.

10:00 Th., 8:00.
8:00.

P., 1:00-4:00; Rec. S. P.

10

Sanitary Engineering.

This Course is arranged with the purpose of combining a study of the principles of sanitary science, with the fundamental training of the Course in Civil Engineering.

The Freshman and Sophomore years are identical with those of the Course in Civil Engineering (p. 214). In the two later years, the work in structural and railway engineering is reduced and more attention is given to Sanitary Engineering. Thorough courses are arranged in those sciences which immediately underlie this particular branch, Bacteriology, Chemistry and Hygiene, and special instruction is given in building and municipal sanitation, sewage disposal and water purification.

No. Course.	Subject.	Semester.		Hours.
		I	II	
<i>Junior Year.</i>				
Mech. 8 ...	Mechanics of Engineering	5	5	Daily, 8:30.
C. E. 7....	Municipal Engineering...	2	2	W. F., 9:30.
Chem. 12...	Technical Chemistry . . .	3	3	
C. E. 10...	Framed Structures.....	3	3	M. W. F., 1:30-4.
M. E. 1....	Steam Engineering....	3	....	T. Th. S., 9:30.
C. E. 14...	Testing Laboratory...	....	1	T., 1:30-4.
C. E. 19...	Materials of Construction.	....	2	T. Th., 11:30.
<i>Senior Year.</i>				
M. E. 11...	Mechanical Laboratory...	....	1	F., 1:30-4.
Hygiene...	Hygiene.....	....	3	
Bact.	General Bacteriology.....	3	....
C. E. 11....	Bridge Design.. . . .	4	....	M. W. F., 8:30-12.
C. E. 9....	Hydraulics.....	3	....	T. Th. S., 11:30.
C. E. 16 ...	Specifications and Con- tracts . . . . .	....	1	S., 10:30.
C. E. 18...	Masonry Structures . . . . .	....	3	M. W. F., 1:30-4.
C. E. 8....	Sanitary Engineering....	3	....	M. W. F., 11:30.
C. E. 14...	Engineering Laboratory..	1	....	S., 8:30-11.
M. E. 7....	Hydraulic Motors.....	2	....	T. Th., 8:30.
M. E. 8....	Pumping Machinery.....	....	2	T. Th., 8:30.
C. E. 20....	Construction.....	....	2	W. F., 11:30.
C. E. 21....	Thesis.....	....	2	M., 8:30-12:30.

Chemical Engineering.

In view of the development of the application of Chemistry on a large scale such as in the manufacture of paints, dyes, soaps, starch, sugar, leather, paper, spirits, drugs, chemicals, abrasives, glue, cements, mortars, illuminants, explosives and other articles too numerous to mention, the Course is offered to furnish training in Engineering together with specialization in Chemistry. It is proposed to extend the Course making it more general on the Engineering side or to offer several parallel courses as the demands require.

SUBJECT.	SEMESTER.	
	I.	II.
<i>Freshman Year.</i>		
English	3	3
Solid Geom., Trig. and Analytic Geom..	3	3
General Chemistry	3	3
Geology	3	3
Descr. Geom.	3	3
<i>Sophomore Year.</i>		
Physics	6	6
An. Geom.	3	—
Calculus	—	3
Organ. Chemistry	3	3
Qual. Analysis	3	3
Drawing	3	3
<i>Junior Year.</i>		
Calculus	3	3
Mechanics	3	3
Tech. Chemistry	3	3
Electr. Measurements	3	3
Electr. Machinery	3	3
<i>Senior Year.</i>		
Tech. Chemistry	3	3
Alt. Currents	6	6
Applied Electro-Chem.	—	3
Hydraulics	3	3

Hydraulic Engineering.

This Course is identical during the first three years with the Course in Civil Engineering and leads to the same degree. During the Senior Year it differs from the Course in Civil Engineering in requiring less structural work and devoting more attention to Hydraulic and Irrigation Engineering.

No. Course.	Subject.	Semester.		Hours.
		I.	II.	
Senior Year.				
M. E. 11...	Mechanical Laboratory...	...	1	F., 1:30-4.
M. E. 7....	Hydraulic Motors.....	2	..	T. Th., 8:30.
C. E. 16....	Specifications and Con- tracts .. . . . .	....	1	S., 10:30.
C. E. 18. .	Masonry Structures. ....	....	3	M. W. F., 1:30-4.
C. E. 11....	Bridge Design.....	4	....	M. W. F., 8:30-11.
C. E. 8.....	Geodetic Surveying.....	3	...	M. W. F., 1:30-4.
C. E. 14....	Engineering Laboratory..	1	....	S., 8:30-11.
C. E. 9.....	Hydraulics.....	3	...	T. Th. S., 11:30.
M. E. 8....	Pumping Machinery.....	...	2	T. Th., 8:30.
C. E. 15....	Hydraulic Engineering ..	2	2	T. Th., 10:30.
C. E. 20....	Construction.. . . .	....	2	W. F., 11:30.
C. E. 21....	Thesis .....	..	2	M., 8:30-12:30.
		0	2	
	Elective.	to	to	
		3	5	

ENGINEERING COURSES IN DETAIL.

Civil Engineering.

Professor SPALDING; Assistant Professor WILLIAMS; Assistant Professor HYDE; Mr. MAUPIN; Mr. SPALDING.

- 1. Elementary Surveying. Use and adjustment of ordinary surveying instruments. Methods employed in land and topographical surveying. *Second Semester*, M. W. F., 1:30-4; T. Th. S., 9:30-12; T. Th. S., 1:30-4. Assistant Professor WILLIAMS; Mr. MAUPIN.
- 2. Higher Surveying. City, topographical, mining, and hydrographic surveying. *First Semester*, M. W. F., 9:30-12; T. Th. S., 9:30-12. Assistant Professor WILLIAMS.
- 3. Geodetic Surveying. Elements of Geodesy with practice in use of precise instruments and reduction of triangulation. Precise level work. Determinations of azimuth. *First Semester*, M. W. F., 1:30-4. Assistant Professor WILLIAMS.

4. **Railway Location.** Theory and practice of railroad surveying, including the field location for a short line of railway. *Second Semester.* M. W. F., 9:30-12; T. Th. S., 9:30-12. Assistant Professor WILLIAMS. Mr. SPALDING.

5. **Railway Engineering.** Complete estimate for railway line; track construction; railway structures; railway economics. *First Semester.* T. Th., 1:30-5; S., 1:30-2:30. Assistant Professor WILLIAMS.

6. **Elementary Construction.** Materials and methods employed in engineering construction; masonry construction; roads and pavements. *First Semester.* M. F., 2. Professor SPALDING.

7. **Municipal Engineering.** Discussion of general problems of municipal public works, with more detailed study of water supply and sewerage. *Both Semesters.* W. F., at 9:30. Professor SPALDING.

8. **Sanitary Engineering.** Sewage disposal, water purification and general sanitation. *First Semester.* M. W. F., at 11:30. Professor SPALDING.

9. **Hydraulics.** Problems in hydraulics; conduits; pipe lines; water towers and stand pipes; dams and gates; measuring devices, etc. *First Semester.* T. Th. S., at 11:30. Professor SPALDING.

10. **Framed Structures.** Analysis of simple trusses. *Graphic statics.* Design for small roof truss. *Both Semesters.* M. W. F., 1:30-4. Assistant Professor HYDE.

11. **Bridge Design.** Design for plate girder bridge and steel railway bridge of short span, with working drawings and estimates. *First Semester.* M. W. F., 8:30-12. Assistant Professor HYDE.

12. **Theory of Structures.** Swing bridges, arches, suspensions and cantilever bridges, deflection of trusses. *Second Semester.* T. Th. S., 9:30. Assistant Professor HYDE.

13. **Masonry Structures.** Theory of masonry structures with design and estimate for masonry or concrete arch. *Second Semester.* M. W. F., 1:30-4. Professor SPALDING.

14. **Testing Laboratory.** Tests for strength and elasticity of wood, iron, and steel in tension, compression torsion and flexure; standard tests for cement and for paving brick. *Second Semester.* T., 1:30-4; Th., 1:30-4. *First Semester.* S., 8:30-11. Assistant Professor HYDE.

15. **Hydraulic Engineering.** *First Semester.* Rivers, canals, harbors, docks, etc. *Second Semester.* the institutions and practice of irrigation; a discussion of the special problems arising in irrigation work. T. Th., 10:30. Professor SPALDING.

16. **Specifications and Contracts.** *Second Semester.* S., 10:30. Professor SPALDING.

17. Advanced Geodesy. *Second Semester*, M. W., 9:30. Assistant Professor WILLIAMS.

18. Mill Structures. Graphical analysis of framed structures; designs for simple roof truss, plate girder, and building details. *Second Semester*, M. W., 9:30-12. Assistant Professor HYDE.

19. Materials of Construction. Properties of the more common materials used in engineering construction, with description of processes of manufacture and methods of testing and inspection. *Second Semester*, T. Th., 11:30. Professor SPALDING.

20. Construction. Methods employed in engineering construction; foundations; walls; embankments; tunnels; hydraulic constructions. *Second Semester*, W. F., 11:30. Professor SPALDING.

21. Theses. An independent investigation or design with complete report or discussion of results.

Electrical Engineering.

Professor SHAW; Mr. NICHOLSON.

1. Electrical Machinery. Theory, construction, and operation of continuous current generators, motors, measuring instruments and accessories. Laboratory: characteristics, efficiencies, heating tests, diseases and remedies. *Both Semesters*, Lecture: S., 1:30. Laboratory: I, T. Th., 1:30-4; II, W. F., 9:30-12.

2. Alternating Currents. Alternating current phenomena. Theory of current flow. Single and multiphase generators, motors, transformers, and instruments. *Both Semesters*, T. Th. S., at 9:30.

3. Alternating Currents. A continuation of Course 2 with laboratory tests as to operation, regulation, efficiency, etc. *Both Semesters*, M. W. F., 1:30-4.

4. Electrical Design. The design of electrical apparatus, including generators, motors, rheostats, transformers, and switchboards. *Both Semesters*, T. Th. S., 8:30-11.

5. Electrical Transmission and Distribution. Study of details of lighting, power, and transmission systems, including street railways, with regard to estimates and specifications, selection and arrangement of machinery, installation, testing, and management. *Both Semesters*, M. W. F., at 11:30.

6. Telephony and Telegraphy. Instruments and systems. Lines and their properties with special reference to effects of inductance and capacity. Wireless telegraphy. Hours to be arranged.

7. Advanced Alternating Currents. With special reference to Long Distance Transmissions. Hours to be arranged.

8. **Seminary.** Discussion of current technical literature. A local section of the American Institute of Electrical Engineers has been established here, and work for the same will constitute part of the Course. *Both Semesters*, Juniors, W., 3; Seniors, W. Th., 3.

9. **Thesis.** Original investigations, and presentation of results in the form of a final thesis. *Second Semester*, T. Th., 9:30-11.

Courses 1, 2, and 3 are required of Juniors in Electrical Engineering; 3, 4, 5, 8, and 9 of Seniors.

Course 1 is required of Juniors in Mechanical Engineering and of Juniors in Sanitary Engineering; 2 of Seniors in Mechanical Engineering.

Courses 6 and 7 are elective for such Engineering students as are prepared for them, usually Graduates.

Mechanical Engineering.

Professor GREENE; Mr. WALLACE.

1. **Steam Engineering.** Fuels, boilers, engines and accessories. An elementary descriptive Course intended to give the student the names, purposes, construction and operation of the various parts of the apparatus found in a steam power plant. *First Semester*, T. Th. S., 9:30; T. Th. S., 11:30. Professor GREENE, Mr. WALLACE.

2. **Kinematics.** Elementary mechanisms: pulleys, belts, link work, gearing, cams. *Second Semester*, T. Th. S., 9:30; T. Th. S., 11:30. Mr. WALLACE.

3. **Steam Boilers.** Value of fuels, determination of the sizes of grate, heating surface, stays, chimney, for a given boiler. Types of boilers for various purposes, methods of testing boilers. Boiler room accessories. Design of a boiler house. Each student is required to make a working drawing of a boiler designed by him. This Course must be preceded by or taken co-ordinately with Mech. 3. *First Semester*, M. W., 9:30; F., 10:30-12:30; *Second Semester*, F., 10:30-12:30. Mr. WALLACE.

4. **Thermodynamics.** Mechanical theory of heat. Cycles and their analyses. *Second Semester*, T. Th. S., 10:30. Professor GREENE.

5. **Heat Engines.** The application of thermodynamics to the various forms of heat engines, air compressors, and refrigerating machines. Form of plants using such apparatus. Discussion of tests, installation and maintenance. This Course must be preceded by Course 4. *First Semester*, T. Th. S., 10:30. Professor GREENE.

6. **Steam Engine Design.** The determination of the sizes of the parts of a steam engine to develop a given power. Discussions of vibrations, fly wheels, balancing, transmission of power by belts, ropes and gears, steam

pipings, shafts. Each student is required to make freehand sketches of the various parts of the complete engine as designed by him. Must be preceded by Mech. 3 and M. E. 1 and 2. *First Semester*, M. W. F., 10:30-12:30; *Second Semester*, W. F., 10:30-12:30. Professor GREENE.

7. Hydraulic Motors. The theory of the action of turbines, measurement of power, discussion of experiments, design of wheels for specific duty. Must be preceded by Mech. 3. *First Semester*, T., 8:30-10:30; Th., 8:30. Professor GREENE.

8. Pumping Machinery. The design of pumps for waterworks and power transmission. Hydraulic presses and machinery. Pipe lines. Plants. *Second Semester*, T. Th., 8:30. Professor GREENE.

9. Machine Design. Design of special machinery. Continuation of work in mechanical drawing and engineering mechanics. The student is required to design a machine tool, crane, pump, girder, or some similar engineering structure and make finished working drawings of the same. Must be preceded by Drawing 1 and 2 and Mech. 3. T. Th., 1:30-4. Mr. WALLACE.

10. Heating and Ventilating. The arrangement and design of systems for heating and ventilating buildings. Application to a specific building. Elective for Seniors. *Second Semester*, T. Th., 11:30. Professor GREENE.

11. Mechanical Laboratory. The calibration and adjustment of instruments, measurement of leverage, determination of the efficiency of machines, tests of materials of engineering, measurement of power, hydraulic measurements, valve setting, coal and gas calorimetry. W., 1:30-4. Mr. WALLACE.

12. Mechanical Laboratory. Testing boilers, engines, pumps, turbines, injectors, air compressor, and refrigerating machinery for efficiency and duty. Studies in generation, transmission and application of power. Heating and ventilating. Calorimetry, *First Semester*, M. F., 1:30-4; *Second Semester*, F., 1:30-4. Professor GREENE.

13. Mechanical Laboratory. A Course for electrical engineers. Calibration of instruments and tests of engines, pumps, turbines, and boilers for efficiency and duty. T., 1:30-6. Professor GREENE.

14. Graphics of Machines. Graphical Analysis of machines. Moment diagrams for shafts; friction of axles, gears, screws. *First Semester*, M., 1:30-4; W., 10:30-12:30. Mr. WALLACE.

15. Plants and Processes. A Course in the layout and arrangement of plants for different engineering works. Engineering manufacturing processes. Elective for Juniors and Seniors. F., 8:30-10:30. Professor GREENE.

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1. Wood-work, Forging, Pattern-making and Foundry Practice.

1a. Wood-work: The required exercises illustrate the various joints and typical operations of carpentry and joinery, and give the student familiarity with the use of the ordinary tools.

1b. Forging: This work includes welding, tempering, case hardening, annealing, etc., and also some study of the metallurgy of iron and steel.

1c. Pattern-making: This includes the practical study of shrinkage, draft, parting, core prints, patterns requiring three part flasks, and the different methods of construction and core work, together with the construction of patterns of different parts of machines to be finished in the machine room. All patterns are tested by the maker in sand, and where practicable are to be cast in lead.

1d. Foundry Practice: This work consists of the study of modern foundry methods and the practical application of the same.

Section I, M. W. F., 1:30-4; Section II, T. Th. S., 3 to 5:30; Section III, T. Th. S., 9:30-12; Section IV, T. Th., 1:30-4; Section V, T. Th., 8:30-11; Section VI, W. S., 1:30-4. Sections IV, V, VI have shopwork for first semester only, and the work consists of 1a and 1b.

2. Machine Work. The aim of this Course is to give the student an acquaintance with the approved methods of machine construction and of modern machine shop practice. Chipping, filing, and fitting, as well as the assembling of small machines, are carefully supervised and graded. M. W., 1:30-4; T. Th., 1:30-4; M. W., 9:30-12. Sophomore.

3. Advanced Machine Work. This course is intended for students who desire to specialize in this work and require more experience than Course 2 will give. T. Th. S., 9:30-12.

Drawing.

Mr. ROLLINS; Mr. ROBINSON; Mr. WINTER.

Instruction is given to all regular Engineering students in the principles of geometrical and mechanical drawing and in freehand sketching. A large amount of time is devoted to practice in the drawing-room to enable the student to acquire the skill necessary for his future work. Drawing is continued also in connection with the student's professional studies.

1. Descriptive Geometry. Orthographic projections, problems relating to points, lines, and planes, preceded by a short course in elementary mechanical lettering and plain freehand lettering. Representation of surfaces, their tangencies, intersections and developments. Shades and shadows. Isometric, cabinet, and perspective views. Section I, T. Th. S., 1:30-4; Section II, T. Th. S., 8:30-11; Section III, M. W. F., 1:30-4.

Freshmen in M. E. and E. E. Courses.

2a. Mechanical Drawing. Selected geometrical problems. Shading and sectioning; tracing; isometric drawings; mechanical lettering and plain freehand lettering.

First Semester, Section IV, M. W. F., 1:30-4; Section V, T. Th. S., 1:30-4; Section VI, T. Th. S., 9:30-12. Freshmen in C. E. course.

3. Drafting. Assembly drawings and tracings are made from especially prepared sketches of details for the purpose of familiarizing the student with conventions used in engineering practice. The parts of a complete machine of approved design are then sketched freehand and the dimensions given on the sketches. Working drawings, assembly and detail, are made from these sketches without further reference to the parts. Blue prints are made by each student from his own tracings. Section I, M., 8:30-11; Section II, W., 1:30-4; Section III, S., 9:30-12; Section IV, M., 9:30-12. Sophomores.

4b. Descriptive Geometry. Problems relating to points, lines, and planes; representation of surfaces; tangencies, intersections and developments; shades, shadows, and perspective. *Second Semester*, IV, M. W., 8:30; F., 8:30-11; V, M. W., 10:30; S., 8:30-11; VI, T. Th., 8:30; F., 8:30-10:30. Freshmen in C. E. course.

5b. Topographical Drawing. Topographical signs; map drawing. *Second Semester*, Section IV, T. Th., 1:30-4; Section V, T. Th., 8:30-11; Section VI, W. F., 1:30-4. Freshmen in C. E. course.

6b. Stereotomy. Problems in stone-cutting; drawings for masonry structures. *Second Semester*, M. F., 1:30-4. Sophomores in C. E. course.

SCHOOL OF MINES AND METALLURGY.

**A Department of the University of Missouri.
(At Rolla, Missouri.)**

FACULTY.

RICHARD HENRY JESSE, LL. D.,

President.

GEORGE EDGAR LADD, A. B., Ph. D.,

Director, and Professor of Geology and Mining.

GEORGE REGINALD DEAN, B. S., C. E.,

Professor of Mathematics.

AUSTIN LEE McRAE, B. S., S. D.,

Professor of Physics.

VICTOR HUGO GOTTSCHALK, B. S., M. S.,

Professor of Chemistry.

ELMO GOLIGHTLY HARRIS, C. E.,

Professor of Civil Engineering.

HEINRICH O. HOFFMAN, E. M., Met. E., Ph. D.,

Special Lecturer in Metallurgy.

JAMES CLARK DRAPER, B. S., E. M.,

Assistant Professor in Mining and Ore-dressing.

PAUL JULIUS WILKINS,

Instructor in Modern Languages.

JOHN BENNETT SCOTT,

Instructor in English, and Secretary.

LEON STACY GRISWOLD,

Instructor in Geology.

JOSEPH HENRY BOWEN,

Instructor in Shopwork and Drawing.

ROBERT CLAIR THOMPSON, B. S.,

Instructor in Chemistry.

GEORGE WALTER HARRIS,

Assistant in Chemical Laboratory.

LEON ELLIS GARRETT, B. S.,

Instructor in Mathematics.

STANLEY RALSTON MOORE,

Assistant in Physical Laboratory.

CHARLES MAHLON HUMMEL,

Assistant in Surveying.

FRANK WILLIAM HARPER,

Assistant in Chemical Laboratory.

ELMER COOPER HECK,

Assistant in Metallurgy.

JOSEPH JARVIS BROWN,

Assistant in Surveying.

CYRUS EDWARD MINOR,

Assistant in Surveying.

Organization:

In 1870, the General Assembly, in accepting the donation by the general government of lands for educational purposes, established an Agricultural College and School of Mines and Metallurgy, "the leading object of these Colleges" being "to teach such branches as are related to agriculture and mechanic arts and mining, including military tactics, and without excluding other scientific and classical studies, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life." The Statutes fix the status of the School of Mines as a Department of the State University. Its affairs are under the immediate supervision of the Executive Committee, consisting of three members of the Board of Curators of the University.

Location:

The School is located at Rolla, the county seat of Phelps county, on the St. Louis and San Francisco railroad, about midway between St. Louis and Springfield. Rolla has an altitude of 1,140 feet above sea level and enjoys an agreeable and notably healthful climate. It is midway between the mining districts of Southeast and Southwest Missouri.

Admission:

From Accredited Schools.—Graduates of Accredited Schools (see pages 53-5) who bring certificates signed by the Superintendent or Principal of the school showing that they have completed thirteen (13) units in the subjects that may be offered for admission (see page 43), and that three (3) of these units are in English, two (2) in Algebra, and one (1) in Plane Geometry, will be admitted without examination.

By Examination.—Students not admitted by certificate from Accredited Schools must pass examinations upon thirteen (13) units, three (3) of which must be in English, two (2) in Algebra, and one (1) in Plane Geometry. For subjects that may be offered, see page 43.

Buildings and Equipment:

The buildings of the School of Mines are situated in the most elevated part of the town of Rolla. They are nearly all substantial brick structures, well ventilated and lighted and heated by steam. There are eight in all: Mining and Metallurgical Building, Chemical Laboratory, Museum and Geological Survey Building, Workshop and Dynamo Laboratory, temporary building for Gymnasium, Club House, Mechanical Building, and Engineering Building.

Mining and Metallurgical Building.—The special building for the department of Mining and Metallurgy, finished in 1895, is equipped with the necessary appliances for a practical course in ore concentration, roasting and reduction.

The building consists of two distinct portions, one containing a chemical and mineralogical laboratory, lecture room, reference library, draughting room, petrographical laboratory, blue print room, etc.; the other comprises a large mill room, an engine room, and a boiler room. The mill room is equipped with first-class modern machinery, of standard sizes, for crushing and concentration of ores, the plant containing a Dodge rock breaker, Cornish rolls, stamp battery with automatic feeder, Calumet, hydraulic classifier, inlet discharge separator, Hartz jig, spitzkasten, Parsons-Rittinger percussion tables, Frue vanner, grinding and amalgamating pan and settler, with settling boxes. In addition to these, working models of

different types of concentrators have been made by students of the School of Mines and contributed to its outfit. The reduction plant consists of a reverberatory roasting furnace, and a 20-inch water jacket cupola furnace, with Root blower, for lead and copper ores. There are also assay and cupellation furnaces, and before the beginning of the next term it is hoped that a zinc distillation furnace will have been erected. A barrel chlorination outfit has also been added, and the Ingersoll-Sergeant Drill Co. has presented the School with one of its steam and compressed air drills, with which the classes in mining are given experience in drilling.

The Metallurgical department is also equipped with clay testing apparatus, including the latest type of German-made special fire-clay testing furnaces and accessories and also the Keiser and Schmidt modifications of Le Chatillier's thermo-electric pyrometer for the measurement of high temperature.

The power for the above plant is derived from a 50 H. P. automatic engine, taking steam from two 35 H. P. tubular boilers.

By means of this equipment students receive practical instruction in the crushing and concentration of various ores, and in the metallurgical treatment of ores of lead, zinc, copper, gold and silver.

The Geological and Mineralogical equipment is also in this building but will be removed to one of the new buildings during the next school year. This equipment includes a representative collection of minerals, rocks, and fossils for class use, and a large collection of cabinet specimens of minerals and ores, and of materials illustrating metallurgical processes. There is also a collection of 3,500 specimens representing the mineral wealth of Missouri, consisting of ores of lead, zinc, iron and copper, coal, clays of many sorts, and building stones.

This department has also a very fine equipment for the study of crystallography, consisting of a large collection of wood and glass models, microscopes, rocks and mineral slides and the complete Fuess projection apparatus for illustrations of the optical properties of crystals.

A rock section machine and instruments for geological surveys are included in the equipment of this department.

Chemical Laboratory.—The Chemical Laboratory has recently been enlarged. It is a two-story, substantial, well-lighted brick building, with large wings devoted entirely to the work of the Chemical department. It contains general qualitative, quantitative, organic, and assay laboratories, lecture room, preparation room, balance rooms, stock rooms, private laboratories, offices, and rooms for gas and water analysis, electrolysis, photography, etc.

Museum and Geological Survey Building.—This building contains for the present year the library, laboratories, and lecture and museum rooms.

The departments of Physics and Civil Engineering are at present housed in this building. They have an excellent equipment in the way of laboratory supplies and field instruments and each year is materially adding to their equipment.

Workshop and Dynamo Laboratory.—This is a large wooden structure necessitated by the rapid growth of the wood-working department and the need of more room for students engaged in electrical laboratory work. It is well lighted and is well equipped with carpenter benches, tools, wood and iron lathes, etc. The machinery is run either by electricity from a dynamo in the engine room of the Mining Building, or by a 15 H. P. Otto gasoline engine which is in this building.

The Dynamo Laboratory contains as a part of its equipment one 75 light United States dynamo, one 5 horse power Westinghouse motor, one 5 horse power C. & C. motor, one alternator, one 3-phase generator, single and polyphase transformers, with necessary testing apparatus.

Temporary Building for Gymnasium.—Owing to the large increase in the number of students attending the school, in the fall of 1899 it became necessary to utilize the old drawing room and the lecture room in the Chemical Building for laboratory purposes and a new temporary building was erected for drawing and lecture purposes. Now that the Chemical laboratory has been enlarged and ample facilities for drawing provided in the new buildings, this building in the immediate future will be used for a gymnasium.

Club House.—This is a three-story brick building formerly used as a dormitory but at present occupied by the State Geological Survey.

Mechanical Building.—This is a two-story brick building 150 feet by 60 feet specially designed for mechanical work. The second floor will be used for freshman drawing, carpentry work and wood turning. The first floor will contain a forge room, a power room and iron working room, and dynamo and hydraulic laboratories.

Engineering Building.—This building is a handsome structure, 140 by 85 feet, and four stories in height, built of pressed brick, trimmed with stone.

Ample facilities are offered in this building for administration and for the departments of Physics, Geology, and Mineralogy, and Civil Engineering.

The Physical laboratory is on the basement floor. In addition to the general laboratory there is a photometer room, a constant temperature room, a storage battery room, an electrical testing room, and a laboratory for special work. This floor also contains a blower and fan room for heating and ventilating the building, and a room for storing engineering instruments. The first floor contains the Physics lecture room, Physics apparatus

room, and study, two general lecture rooms, and two rooms for mineralogical collections. The second floor contains administration offices, faculty room, lecture room, Geological, Petrographical and Mineralogical laboratories, photographic room and private library.

The third floor contains a lecture room, two drawing rooms, blue print room, office, and department library.

Library.—The Library contains about 4,000 volumes. It is well provided with scientific and technical works designed to afford the student an opportunity of supplementing his class-work by collateral reading. There is also a respectable collection of works of general literature. On its reading-tables the leading scientific periodicals and others of general or literary interest are accessible. The Library is open daily from 8 a. m. to 4 p. m.

Courses and Degrees:

The School of Mines offers four full Courses leading to the degree of Bachelor of Science, as follows: I—Mining Engineering; II—Civil Engineering; III—Chemistry and Metallurgy; IV—General Science; besides several special shorter courses.

The further degree of Engineer of Mines (E. M.), Civil Engineer (C. E.), Metallurgical Engineer (Met. E.), or Master of Science (M. S.), will be conferred on candidates who, after receiving the first degree from this University or one of equivalent standing, have spent in the same course one year (at least ten hours a week) in graduate work in the University, or two years in professional practice and in graduate work *in absentia*. The candidate must pass an examination on his graduate work and present a satisfactory thesis.

Expenses:

Laboratory Fees.—The Board of Curators, at a meeting held in December, 1898, voted to make tuition free, and to abolish the entrance fees which had hitherto been charged. The fixed charges remaining are: a library fee of \$5 per year, payable upon entrance; a laboratory fee to cover the cost of gas and supplies, amounting to \$10, for the course in General Chemistry; a laboratory fee of \$15 to cover the cost of general supplies, gas, etc., for the course in Qualitative Analysis; a fee for seniors and juniors, taking Chemical laboratory work, of \$3.50; a fee for the course of Shop Work, to cover the cost of supplies, of \$5; a general fee, to cover the cost of supplies, for students taking Assaying, of \$25; a fee, for students taking Mineralogy, to cover the cost of supplies, of \$8; and a fee of \$5 for students in senior Metallurgy.

The above charges are made on the basis of the actual average cost per student for supplies in the respective courses, at wholesale rates.

Contingent Deposits.—Deposits to cover the cost of extra supplies, damage to apparatus, etc., are required of the different classmen, as follows: Freshmen, \$10; Sophomores, Juniors, and Seniors, \$15. Those deposits must be renewed if at any time exhausted, and at the end of the school year whatever sum may remain to the credit of the depositor is returned to him.

No distinction, in admission or charges, is made between residents of this state and those of any other state or country.

Term Reports:

Reports are sent to the parents or guardians of each student, at the close of each term, showing the student's grade in scholarship, and giving such other information in regard to his progress, attendance, etc., as may be thought to be of interest. The attention of parents and guardians is particularly called to these reports.

SCHEMES OF STUDY.

I. Mining Engineering.

FRESHMAN YEAR.

First Term.

Trigonometry, lectures and recitations	2 hours
Higher Algebra, lectures and recitations.....	5 hours
General Chemistry, lectures and recitations.....	4 hours
English, lectures and recitations	5 hours
Chemistry, laboratory work	1 afternoon
Drawing	2 afternoons
Shop practice	2 afternoons

Second Term.

General Chemistry, lectures and recitations.....	4 hours
Trigonometry, lectures and recitations.....	3 hours
Solid Geometry, lectures and recitations	3 hours
English, lectures and recitations	5 hours
Chemistry, laboratory work	1 afternoon
Drawing	2 afternoons
Shop practice	2 afternoons

Third Term.

General Chemistry, lectures and recitations.....	4 hours
Analytic Geometry, lectures and recitations	5 hours

Physics, lectures and recitations	4 hours
English, lectures and recitations	4 hours
Chemistry, laboratory work, Qualitative Analysis.....	1 afternoon
Drawing	2 afternoons
Shop practice	2 afternoons

SOPHOMORE YEAR.*First Term.*

Calculus, lectures and recitations	5 hours
Descriptive Geometry, lectures and recitations.....	2 hours
Surveying, lectures	3 hours
French, German or Spanish, lectures	5 hours
Chemistry, laboratory.	2 afternoons
Field Practice in Surveying	2 afternoons
Descriptive Drawing	1 afternoon

Second Term.

Descriptive Geometry, lectures and recitations.....	2 hours
Calculus, lectures and recitations	5 hours
Mineralogy, lectures and laboratory	10 hours
French, German or Spanish, lectures	5 hours
Chemistry, laboratory work	2 afternoons
Descriptive Drawing	1 afternoon
Shop practice, forge	2 afternoons

Third Term.

Descriptive Geometry, lectures and recitations	3 hours
Calculus, lectures and recitations	5 hours
Physics, lectures and recitations	5 hours
French, German or Spanish, recitations	5 hours
Chemistry, elective work	2 afternoons
Descriptive Drawing	1 afternoon
Physics, laboratory	2 afternoons
Topography	1 week

JUNIOR YEAR.*First Term.*

Mechanics, lectures and recitations.....	5 hours
Geology, lectures	3 hours
Ore-dressing, lectures	3 hours

Thermodynamics, lectures and recitations	5 hours
Quantitative Analysis or Assaying, laboratory work.....	2 afternoons
Steam Laboratory	1 afternoon
Ore-dressing, laboratory work	Saturdays
Shop practice, metal	2 afternoons

Second Term.

Physics, lectures and recitations	5 hours
Geology, lectures	3 hours
Mechanics of Materials, lectures and recitations	4 hours
Metallurgy, lectures and recitations	5 hours
Physics, laboratory work	2 afternoons
Assaying or Quantitative Analysis, Drawing or Electrical Measurements—laboratory work	2 afternoons
Mineralogy, laboratory work	1 afternoon

Third Term.

Masonry, lectures and recitations	2 hours
Geology, lectures	3 hours
Dynamo Machinery, lectures and recitations.....	3 hours
Metallurgy, lectures and recitations	5 hours
Lines of Communication, lectures and recitations.....	3 hours
Physics, laboratory work	2 afternoons
Quantitative Analysis, Drawing or Motor Testing—laboratory work	3 afternoons
Metallurgy, laboratory work	Saturdays
Topography	1 week

SENIOR YEAR.

First Term.

Economic Geology, lectures	2 hours
Alternating Current Machinery, lectures and recitations.....	5 hours
Metallurgy, lectures and recitations	5 hours
Framed Structures, lectures and recitations	5 hours
Dynamo Laboratory	2 afternoons
Metallurgical Designing	2 afternoons
Engineering Laboratory	1 afternoon
Metallurgy, Laboratory work	Saturdays

Second Term.

Economic Geology, lectures	2 hours
Metallurgy, lectures and recitations	5 hours

Hydraulics, lectures and recitations	5	hours
Electrical Transmission, lectures and recitations.....	3	hours
Metallurgical Designing	3	afternoons
Electrical Problems and Designing	1	afternoon
Hydraulics, Problems and Designing	1	afternoon
Metallurgy, Laboratory		Saturdays

Third Term.

Mining, lectures	5	hours
Contracts and Specifications	2	hours
Compressed Air and Power Transmission.....	2	hours
Thesis	5	afternoons

COURSES OF INSTRUCTION.

Department of Mathematics.

Professor DEAN; Mr. GARRETT.

The study of Mathematics, as pursued at this school, is chiefly for the purpose of acquiring a working knowledge of its use in the subsequent studies of Engineering, Physics, and Chemistry, and not merely as a component part of a general education. Great care is accordingly exercised to insure the attainment of skill in practical applications requiring analytical powers as well as mere computation. Frequent written reviews test the proficiency of the student.

1. *Solid and Spherical Geometry*.—Three times per week during second term in Freshman year.

Text-Book.—Professor's Notes, supplemented by lectures and problems of demonstration, of construction, and of computation.

2. *Higher Algebra*.—Five times per week in the first term of Freshman year.

Text-book.—Professor's Notes, supplemented by lectures and numerous problems. The subjects of this course are taken up in the following order:

Quadratic Equations, Theory of Quadratic Expressions, Cubic Equations, Biquadratic Equations, General Theory of Equations, Limits, Series, Logarithms.

3. *Trigonometry*.—Two times per week during the first term, and three times per week during second term of Freshman year.

Text-book.—Professor's Notes, supplemented by lectures and problems. The subjects are treated in the following order: Functions of one angle; solution of right triangles; solution of trigonometric equations involving

functions of one angle; functions of two angles; functions of multiple and submultiple angles; De Moivre's Theorem and its elementary applications; solution of trigonometric equations involving multiple and submultiple angles; solution of trigonometric equations involving two or more angles and multiple angles; solution of plane triangles; spherical triangles; fundamental formulae; solution of spherical triangles; applications of spherical trigonometry.

4. *Analytic Geometry*.—Five times per week, third term Freshman year.

Text-book.—Professor's Notes, supplemented by lectures and problems.

The object of this course is to give the student a working knowledge of the relations of an equation and its locus.

Outline.—Equations of straight lines under given conditions; the straight line as locus; relations of two or more straight lines; equations of circles under given conditions; the circle as locus; intersections of curves and straight lines; equation of tangent to any curve; asymptotes; classification of curves of second degree; plotting curves of second degree from numerical equations; center of conic section; diameters; relation of diameters and tangents; determination of foci, eccentricity and directrices of conic section; study of special forms of equation of second degree; reduction of general equation to simplest form. About two weeks at end of term are devoted to the geometry of the plane and straight line, and the simple forms of the equations of surfaces of the second degree.

5. *Calculus*.—Five times per week throughout the Sophomore year.

Text-book.—Professor's Notes, supplemented by lectures.

Outline.—Graphic representation of functions; algebraic and geometrical limits; derivatives of algebraic functions; geometrical problems in maxima and minima involving algebraic functions; tangents, normals and asymptotes; tracing curves having singular points; derivatives of trigonometric functions; problems in maxima and minima; kinematical problems; derivatives of inverse trigonometric functions; derivatives of complex functions; Maclaurin's Theorem and applications; Taylor's Theorem and applications; functions of two variables; problems in maxima and minima; tangent planes and normals to surfaces; simple integrals; application in finding areas; centers of gravity, moment of inertia; double and triple integrals and their applications in finding volumes, centres of gravity, moment of inertia; line-integrals and surface-integrals; attractions and potential; simple forms of differential equations of mechanics.

Elective Work:

1. *Calculus*—Lamb or Williamson.
2. *Plane Analytic Geometry*—Salmon or Puckle.

3. Solid Analytic Geometry—Frost or Joachimsthal.
4. Trigonometry—Hobson or Loney.
5. Differential Equations—Murray or Johnson.
6. Harmonic Functions—Byerly or Ferrera.
7. Analytical Mechanics—Minchin's Statics, Pirie's Rigid Dynamics, Painleve's Differential Equations of Mechanics.
8. Potential Function—Pierce.

Department of Chemistry.

Professor GOTTSCHALK; Mr. WILSON; Mr. THOMPSON; Mr. ———.

1. *General Chemistry*.—A comprehensive study of the general principles of Chemistry and of the more important elements. Special attention is given to the Chemistry of the Metals. The Periodic law is followed throughout. The lectures are fully illustrated; the class is divided into several smaller sections for recitations. Freshman class, four times a week throughout the year.

General Chemical Laboratory.—The laboratory work accompanying General Chemistry, consists of experiments which are largely quantitative, and which are intended to teach stoichiometrical relations from the first. Freshman class, one afternoon per week throughout the year.

Text-book.—Newth's Inorganic Chemistry.

2. *Applied Chemistry*.—Lectures and recitations. Must be preceded by Course 1.

First Term.—Consideration of the technical processes and of the chemical principles involved in the manufacture of the more common, crude and pure inorganic chemicals. The work during this term is intended to supplement, to some extent, the laboratory work in inorganic preparations; its main objects, however, are to lead the student to a more intelligent use of chemicals as they are obtained in the market, as well as to insure at least some familiarity with industries with which his later work may be identified.

Second Term.—Treatment of the manufacture, chemical and physical properties, etc., of materials used in the construction of various kinds of apparatus: e. g., Glass, Ceramics, Refractory Materials, Lime, Cement, Plaster, Paints, Varnishes, Pigments, etc. Sophomores, three times per week, first and second terms.

Text-book.—Thorp's Outlines of Industrial Chemistry.

Reference Books.—Blount and Bloxam's Chemistry for Engineers and Manufacturers; Thorp's Dictionary of Applied Chemistry.

3. *Phase Rule*.—A brief exposition of the consequences of the applica-

tion of J. Willard Gibbs' Phase Rule, in a qualitative manner to the study of the preparation and preservation of hydrated salts; preparation and properties of binary, ternary and more complex alloys, together with the principles of metallography; crystallization, distillation, and other operations in the preparation of inorganic and organic compounds on a small or large scale.

The generalizations to be gained from this study are of inestimable value to the scientific and technical chemist, and to the metallurgist in an intelligent prosecution of his later studies in the laboratory and in practice.

The matter is presented in lectures. In addition the student will regularly be assigned Journal references to read, on which he will be required to prepare a brief written resume.

Requires Course 1 in Chemistry, and a knowledge of Elementary Physics.

Required of all students in the C. and M. course, first term, Sophomore year, three times a week.

4. *Organic Chemistry*.—Aims at giving a thorough elementary knowledge of organic chemistry.

Text-Books.—Renisen's Organic Chemistry, and Gattermann's Practical Organic Chemistry.

Four hours a week, lectures and recitations, and one afternoon a week laboratory work for two terms.

Required of students specializing in Chemistry in the C. and M. course.

5. *Industrial Organic Chemistry*.—Lectures and recitations on the more important organic industries, with considerations of the analytical chemistry involved.

Requires Courses 1, 2, 3, and 4.

C. and M. Course, first term, Junior year, five times per week.

Reference Books.—Thorp's Outlines of Industrial Chemistry; Sadtler's Industrial Organic Chemistry; Thorp's Dictionary of Applied Chemistry.

6. *Principles of Analytical Chemistry*.—Lectures and recitations. Aims at laying a broad foundation for general analytical work. The matter, as given in Ostwald's Scientific Foundations of Analytical Chemistry is carefully explained, and amplified by lecture demonstrations.

Requires Courses 1 and 9.

First term, Junior year, three times per week.

Theoretical Chemistry.—This Course is required of the chemistry men in the C. and M. Course.

First Term.—A survey of the historical development of chemistry from ancient times to the beginnings of Quantitative Work.

Second Term.—The Beginnings of Quantitative Work, Laws of Chem-

ical Combination, Atomic Theory, Avogadro's Hypothesis, Molecular and Atomic Weights, The Periodic Law, Constitution of the Molecule, Stereo-Chemistry.

Third Term—Physical Chemistry, Solution and Alloys, Chemical Reactions, Equilibria, Reaction Velocity, Thermo-Chemistry, Electro-Chemistry.

The laboratory work will consist of determinations of molecular weight by the vapor density, boiling point and freezing point methods; work in glass blowing; principles of physico-chemical measurements, with especial reference to the graduation and calibration of instruments used in chemical work.

Juniors, three terms, five hours per week and two afternoons laboratory work for one term.

8. *Inorganic Preparations*.—Laboratory work accompanying General Chemistry. The preparation of inorganic substances in pure form and by economical methods. Discussions of solution, filtration, crystallization; drying, etc., on a large scale are given. Two afternoons per week, one term, for metallurgy students; three afternoons per week, one term, for chemistry students.

Text-book.—Thorp's Inorganic Preparations.

9. *Qualitative Analysis*.—Chiefly laboratory work. A conference is held once a week, where difficulties are discussed and general instruction given. A written and a laboratory examination are given at the end of the course.

With the growing importance of spectroscopic methods, it has seemed expedient to introduce, as part of the work for students specializing in chemistry, a short course designed to give some practice in the use of the spectroscope and its accessories in qualitative analysis. This work is given C. and M. men after their regular qualitative analysis has been completed.

Two terms' work required for men three afternoons a week; for M. E. and M. men, two afternoons a week.

10. *Quantitative Analysis*.—The laboratory is abundantly supplied with all needed apparatus for analysis and materials, such as ores, slags, mattes, alloys, and commercial metals.

Students in the C. and M. Course are required to take Water Analysis and Gas Analysis as a part of their course; otherwise considerable latitude in the choice of the work is permitted. For C. men, the work in commercial organic analysis is a continuation of their advanced quantitative analysis.

Fresenius and Furman are used as text-books. Standard works of reference are at the disposal of the students.

Required only in C. and M. Course; Junior in E. M. Course may elect a portion of this subject instead of Drawing or Electrical Measurements, two terms, two and three afternoons respectively.

The men specializing in Metallurgy are given a week's work at the end of the second term Junior year, with the prevalent technical volumetric methods for Assaying Zinc, Lead, Copper, Iron, Calcium, etc., as preparation for the course in Metallurgical Laboratory.

11. *Electrochemistry*.—Lectures and recitations. C. and M. Seniors, three hours per week, first term, and three afternoons laboratory work for one term.

Text-books.—LeBlanc's *Electrochemistry*; Lorenz *Electrochemisches Peaptitcum*.

12. *Seminar*.—Reading courses and research. The Juniors and Seniors in the Chemistry course are required to meet one afternoon a week throughout the year.

Abstracts of current journal literature, reports and lectures prepared from the student's reading on special subjects or chapters in the field of chemistry, are critically discussed. Emphasis is laid on precision, exhaustiveness, and careful preparation.

Reading courses are outlined somewhat minutely for each individual student. The work will be so divided that the major part of the reading will represent systematic advanced work along a chosen line (Rare Elements, Theoretical, Physical, or Mathematical Chemistry, Organic Chemistry, Technical Subjects, etc.). The reading required for seminary and research will be included here.

Research to furnish the material for the Bachelor's Thesis, which in this course is of a somewhat higher standard than is customary.

The time as given in the schedule of hours is the minimum.

Department of Physics.

Professor McRAE; Mr. DAILY.

1. *Elements of Physics*.—Some acquaintance with Elementary Physics is required for entrance, but a more extended and thorough knowledge of the elements is given, as an introduction to the work of the Sophomore and Junior years. The fundamental principles of Physics are discussed as fully as the time allotted will permit. Particular attention is given to the mechanics of the simple machines.

The work is carried on by lecture and recitation; the lectures are illustrated by simple experiments. Freshman, third term, five times a week.

Text-books.—*Elements of Physics*, by Rowland & Ames, and *Mechanics and Hydrostatics*, by Loney.

2. *Electricity and Magnetism*.—Lectures and recitations, three hours a week during the first term. This course is designed as an introduction to

the study of Electricity and Magnetism. Open to all who have completed 1.

Text-book.—Lessons in Electricity and Magnetism, by S. P. Thompson.

3. *Laboratory Work in Electricity and Magnetism.*—Three afternoons a week throughout the year.

4. *General Physics.*—The study of advanced physics is taken up during the third term of the Sophomore year, and continued during the second term of the Junior. The Sophomores study Kinematics, Statics, Kinetics, and the Mechanics of Fluids during the first part of the term, and conclude with the subject of Heat toward the last of the term. The study of Heat includes an introduction to Thermodynamics. Particular attention is paid to harmonic motion as the basis for the study of the subjects of Sound, Light and Alternating Currents of Electricity.

During the second term of the Junior year the study of Electricity and Magnetism is taken up. Such subjects as static electrification, potential, quantity, capacity, resistance, induction, impedance, inductive capacity, electric waves, etc., are studied. During the latter part of the term the reflection, refraction, diffraction, and interference of sound and light are studied. The entire course is illustrated by lecture experiments and supplemented by work in the laboratory. Five times a week.

Text-book.—General Physics, by Watson.

5. *Laboratory Work in Mechanics, Sound, Light, Heat, Electricity, and Magnetism.*—In the laboratory, the work is quantitative and aims as far as possible, to instruct the student in the methods of physical measurement and the derivation of relations between the quantities measured. Emphasis is laid upon the derivation of physical laws rather than the verification of them. Required of Sophomores two afternoons a week during the third term, and of Juniors two afternoons a week during the second term.

6. *Mechanics.*—The mechanics of General Physics is followed by a course in Analytic Mechanics. The work includes Statics and Kinetics with their application to engineering problems. Inertia, moment of inertia, work, energy, force, friction, etc., are treated at some length. Recitations, supplemented by lectures, five times a week during the first term.

Text-book.—Elements of Mechanics, by Wright.

7. *Thermodynamics.*—A short course in Theoretical Thermodynamics is followed by a study of boilers, furnaces, and heat engines, standard types of safety and tubular boilers, chimney and mechanical draft, pumps, heaters, etc.; steam, gas, and gasoline engines are studied. Recitations and lectures are supplemented by the equivalent of one afternoon a week in the Steam Laboratory, where practice is had in operating and indicating engines; measuring chimney draft, boiler evaporation and the calorific value of fuels. Junior year, first term, five times a week.

8. *Dynamo Machinery*.—During the third term the Juniors in Mining Engineering meet three times a week for discussion of direct current dynamos and motors. This course includes a discussion of the magnetic circuit of dynamos and motors, with methods of connecting for operation in series and parallel; characteristic curves, methods of testing dynamos and motors, etc.

9. *Alternating Current Machinery*.—The Seniors meet five times a week during the first term for the study of alternating currents and alternating current machinery. Typical single and polyphase generators, synchronous and induction motors, stationary and rotary transformers, are studied; and the effect of frequency, induction and capacity upon the impedance of the circuit are studied by the graphical and analytical solution of numerous problems in transmission and distribution.

10. *Electrical Transmission*.—During the latter part of the first term the class in Alternate Current Machinery begin the study of the Electrical Transmission of Energy and continue this subject three times a week during the second term. The course includes the continuous circuit, single and polyphase alternating current transmission, series and parallel distribution, design of the conducting system, overhead and underground construction, etc. Lectures and recitations, supplemented by one afternoon per week devoted to working out electrical problems.

Text-book.—The Professor's Notes.

11. *Dynamo Laboratory*.—The work in the Dynamo Laboratory is begun in the third term of the Junior year and continued two afternoons a week during the first term of the Senior year. The work includes calibration of instruments, characteristic curves, efficiency tests of dynamos, motors, transformers, etc., line resistance, capacity, inductance, impedance and insulation measurements.

Laboratory Text-books.—Stewart & Gee, Vol. I, Elementary Practical Physics, and Vol. II, Electricity and Magnetism; E. L. Nichols, Laboratory Manual, Vol. I and Vol. II; Kohlrausch, Physical Measurements; Carhart & Patterson, Electrical Measurements; Ostwald, Physico-Chemical Measurements.

Elective Work:

12. *Theory of Electricity and Magnetism*.—A mathematical treatment of the subject. Three hours a week during the first and second terms. Open to graduates and to advanced undergraduates.

Text-book.—Electricity and Magnetism, by F. E. Nipher.

13. *Alternating Currents*.—An analytical and geometrical treatment of the subject. Two hours a week during the first and second terms. Open to graduates and to advanced undergraduates.

14. *Dynamo Design.*—This course includes the design of dynamos, motors, alternators and transformers. Three afternoons per week during the third term. Open to those who have completed Courses 8 and 9.

Department of Civil Engineering.

Professor McCONNELL; Mr. GARRETT; Mr. BOWEN; Mr. WEBSTER; Mr. WRIGHT; Mr. MORGAN.

1. *Drawing.*—Freshmen devote six hours per week to exercises in ruling, line-shading, etc., calculated to teach the use of drawing instruments, followed by a thorough drill in freehand lettering, pencil sketching and drawing from models, scaled machine and architectural drawings from detail plates, tracing and blue printing.

The work of the Sophomores consists of brush-shading in India ink, of plane cylindrical, spherical and other surfaces, followed by a graded series of machine drawings. The latter involve, first, making freehand sketches of the details of machines, such as locomotive parallel rods, piston rods, crossheads, check valves, globe valves, lathe stocks, steam engine cylinders, valves, etc., with dimensions carefully indicated. From freehand sketches thus prepared, the student makes the assembled drawing to scale by use of drawing instruments, presenting as many views and sections as are necessary to make the drawing readable.

Considerable time is given to working exercises in Descriptive Geometry, and to preparing plats of surveys made in field practice.

The work outlined above continues throughout the year in connection with the field practice. When students are not called out to field practice they spend their time at regular work in the drawing room.

In the Junior and Senior years the draughting work is made to accompany and illustrate the class instruction, as outlined above, the work in each course being made to fit its particular needs. In the Senior year much of the draughting is in the execution of designs. These will take the form, for Civil Engineers, of the design of a bridge, roof truss, or other structure; for students in other Courses, of designs of mining machinery or metallurgical appliances, the latter being made under the direction of the Professor of Mining and Metallurgy.

2. *Engineering Laboratory.*—A short Course for Civil Engineering Freshmen to acquire familiarity with the ordinary surveying instruments, the compass, transit, level and sextant. Special attention will be given to the reading of verniers, direct and retrograde, and the correct reading of graduated scales.

3. *Surveying.*—The Freshman work is confined to compass, pacing

and chain surveys. Exercises in alignment, finding areas, measuring angles and distances, using only compass and chain will be given.

The Sophomore work consists of a Course in general surveying, including the use of the transit, the level, and the solar compass. Areas surveyed are required to be plotted to scale and the drawing completely finished in all its details. Following this work city surveying, topographic methods and mine surveying are given some attention.

The advanced work in surveying covers triangulation, base-line measurement, precise leveling, hydrographic surveys and public land surveys.

4. *Descriptive Geometry.*—The usual text-book work is reinforced with daily blackboard exercises in presenting the projections of familiar objects, intersections of plane and curved surfaces, sections, developments, etc. The work includes perspective and shades and shadows. The afternoons in the drawing room are devoted to the solution, in neat form, of the more elaborate exercises. Sophomores, two times and one afternoon per week throughout the year.

5. *Mechanics of Materials.*—A four-hour Course covering the stresses induced in rigid bodies by the application of external forces. The topics discussed are: Elementary Stresses and Strains; Tension; Compression of Short Blocks; Factors of Safety; Shearing; Torsion; Flexure; Neutral Axis, Shear and Moment Diagrams; Flexural Strength and Stiffness; Elastic Curves; Maximum Moment and Maximum Shear; Beams of Uniform Strength; Rolled Beams; Built Beams; Dangerous Section; Continuous Girders; Flexure of Prismatic Beams under Oblique Forces; Flexure of Long Columns. Juniors, four times per week during winter term.

6. *Mechanics.*—Dynamics—moment of inertia; rotary motion; work, power; horsepower; kinetic energy; friction. Juniors in Civil Engineering five times per week during spring term.

7. *Masonry Construction.*—The Course treats of the economic properties of building stone, brick and cements; the proportioning, mixing and placing of mortars and concrete; preparation of foundations and strength and stability of masonry structures, including dams, piers, abutments, retaining walls and arches. Juniors, third term, twice a week.

8. *Railroad Location.*—A two-hour Course for Civil Engineers covering the location of railways. The field practice is sufficient to bring out the practical application of the mathematical theory of circular curves modified by transition or easement curves. The work is supplemented by a ten days' survey on continuous location, during which time a short line is located and all notes taken necessary to a complete estimate of cost. Sophomores, two afternoons per week, spring term.

9. *Lines of Communication*.—Instruction is given in the principles governing the location of railways, highways and canals; in the methods of estimating earthwork; and in laying out work for construction. Juniors in Mining Engineering, third term, three times per week. Searle's Field Engineering used as a text-book.

10. *Railroad Construction*.—A three-hour Course during which the notes taken at the previous term's excursion for railroad location are plotted and estimates made of cost of construction. The course includes a consideration of railroad structures, such as culverts, trestles, bridges, buildings, etc. Juniors, three times per week, fall term.

11. *Economics of Railway Location*.—A treatment of the theory of the economic location of railways as laid down by Wellington. Juniors, three times per week, winter term.

12. *Railroad Maintenance*.—A three-hour Course on the practice of maintenance of way, involving a consideration of track and track work, tools, ballast, ties, rails and rail sections, rolling stock, buildings, etc.

13. *Topography*.—At the end of the winter term an entire week is given up to the topographic survey of Phelps county. The work is carried on by the Junior and Sophomore classes. The Junior class does triangulation, base-line measurement and precise leveling. The Sophomore class takes contours, streams, roads and other natural and artificial features.

14. *Highways and Pavements*.—A Course discussing the principles involved in the location and construction of highways, streets and roads, and the merits of the various methods of paving. Juniors, first term, three times per week.

15. *Cement and Concrete*.—A Course designed to bring out the necessary qualifications for good cement, and good concrete, and the amount of the various ingredients necessary to produce a substantial result. Laboratory work and lectures, second term, twice a week.

16. *Foundations*.—A Course covering the general requirements for foundation in water and on land, in soft and in firm soils, and upon rock. Also a discussion of the materials available for the various classes of work demanded. Juniors, third term, twice a week.

17. *Bridge Stresses*.—A Course wherein the theory of single span trusses is applied to a specific example. Each student is required to work out and present a complete tabulation of the stresses in a truss of given span under a combination of dead load, wind and snow load, and rolling load. For Civil Engineers only. Juniors, third term, four times per week.

18. *Bridge Design*.—A Course covering the design of the various members of a single span truss, under the stresses as determined by the previous term's work on bridge stresses. Civil Engineers only. Seniors, first term, twice a week.

19. *Frame Structures.*—This Course, designed alike for students in Mining and Civil Engineering, treats of general methods of determining stresses in such structures as single span bridges, roof trusses, towers, derricks and of the design of individual members, as posts, beams and rods, to carry specified stresses. Throughout the Senior year the student is exercised in this subject in his problems in designing. Seniors, first term, five times a week.

20. *Hydraulics.*—A Course covering general hydraulic theory, including barometers and manometers, hydraulic press, safety valves, strength of hollow cylinders against bursting, resultant fluid pressure, centre of pressure, stability of walls and dams against fluid pressure, retaining walls, flotation, hydrostatics of gaseous fluids, work done by expanding gases, barometric leveling, hydrodynamics; flow through orifices in thin plate, short tubes and long pipes, over weirs and dams; losses of head due to various causes. Seniors, first term, five times per week.

21. *Hydraulic and Other Motors.*—A short Course covering the theory of water wheels, turbines, impulse wheels, steam engines, gas and hot air engines. Seniors, second term, three times per week.

22. *Sewer Design and Operation.*—A Course covering the principles involved in the collection and disposal of sewage and storm waters. Seniors, second term, twice a week.

23. *Hydraulic Engineering.*—A Course designed to bring out the principles involved in the design and construction of water supply systems, collection basins, and reservoirs. Seniors, second term, twice a week.

24. *Compressed Air.*—A Course covering the laws governing the compression and piping of air and the application of compressed air to the industries. Seniors, second term, twice a week.

25. *Power and Power Plants.*—A Course relating to the location and development of water powers. Seniors, second term, three times per week.

26. *Geodesy and Least Squares.*—A Course designed to treat of the true form of the earth and the methods used for its determination. Also a discussion of the method of least squares in its applications to the treatment of the errors of observation. Seniors, second term, five times a week.

27. *Irrigation.*—A short Course designed to bring out the essential details of the location of canals, headworks, impounding reservoirs, and supplementary works. Seniors, third term, three times per week.

28. *Sanitary Engineering.*—A Course treating of the necessary precautions for the protection of water supplies from pollution and the methods available for the purification of contaminated supplies. Seniors, third term, three times per week.

29. *Hydrography.*—A Course intended to bring out the steps neces-

sary for the measurement and estimation of the probable amount of water available from a given watershed. Seniors, third term, three times per week.

30. *Contracts and Specifications*.—A Course covering the general principles involved in the drawing up of contracts, and the preparation of specifications for the control and guidance of contractors and engineers. Seniors, third term, twice a week.

31. *Estimates and Bidding Sheets*.—An exercise in the preparation of estimates of cost and the making out of bidding sheets for the use of contractors. The work will be based on actual construction either in course of construction or already completed upon which the actual figures are available. Seniors, third term, twice a week.

32. *Supervision of Contracts*.—A series of lectures on the general conduct of contracts; tools, methods, organization, and maintenance of working forces. Seniors, third term, three times per week.

Graduate Work:

Graduate Courses may be arranged in the following subjects:

Railroad Engineering.—Yards, terminals, block and interlocking signals, improvement of right of way, improvement of old roadway, reducing grade and curvature.

Marine Constructions.—Docks, quay walls, wharves, dry docks, harbors, levees, high masonry dams.

Waterworks.—Design, construction and management.

Department of Mining and Geology.

Professor LADD and Mr. DRAPER.

Lectures and laboratory work supplemented by excursions in the field make up the Courses in this department, which are as follows:

1. *Crystallography*.—This is taught as an introduction to the Course in Mineralogy, and consists of lectures on the general principles of the subject, with a careful study of the forms of different systems, and the different methods of notation. The study of models, drawings and natural crystals constitute an important part of the Course. Juniors, first term, as a part of Mineralogy.

2. *Mineralogy*.—This Course consists of lectures and laboratory work. It involves the study of the important metaliferous and rock-forming minerals. Blow-pipe determination is made use of, and the student is taught also, as far as possible, to recognize the minerals through their various characteristics without the use of qualitative analysis and blow-pipe work.

Moses' Mineralogy and Blow-pipe Analysis, or Dana's Text-book of Mineralogy may be used as a text. Junior, first and second terms, four hours per week.

3. *Petrography*.—The practical determination of rocks is treated as a continuation of Mineralogy, and this Course includes the microscopic study of rocks; the microscopic study of rock and crystal sections, and the preparation of such sections by the student. Lectures and laboratory work Junior year.

4. *General Geology*.—This is a lecture Course devoted to the principles of general and economic Geology. It discusses the evolution of the earth, its present condition, and the processes which have modified its crust and surface. Owing to its economic importance special attention is paid to structural Geology, and the student is taught to make and to interpret geological maps and sections, covering a great variety of folding and faulting of strata. This Course is closed with a discussion of the general features of the Geology of the United States. Juniors, three hours per week throughout the year

5. *Economic Geology*.—This is a series of lectures dealing with the occurrence, origin and distribution of ores, clays, building stones, gems, water supply and other products of economic value from the different geological formations. The characteristics and genesis of ore deposits are carefully considered. The use of Kemp's Ore Deposits of the United States and Canada is required of the student. Seniors, twice a week, first and second terms.

6. *Mining*.—Lectures on Prospecting, Drilling and Well-boring, Exploitation, Methods of Extraction, Blasting, Transportation, Drainage, Ventilation, Lighting, Accidents, Hygiene, Mining Law, Sampling and Examination of Mines, and Quarrying. Practical problems, projects, and reports on visits of inspection, constitute features of the Course. Seniors, third term, five hours per week. Continued by 7.

7. *Mining Machinery*.—A Course of lectures on Mining Machinery, and the application, in general, of problems in Mechanical Engineering to mining.

8. *Mine Surveying*.—Some additional matter, such as methods adapted to special cases, with problems involving the principal conditions encountered in Mine Surveying are included in the Course in Mining. The subject of Mine Surveying constitutes part of the Course in Engineering Geodesy in the Department of Engineering. An excursion to the Joplin district for Mine Surveying is a part of the work. Junior year.

9. *Mining Design*.—Involves the designing, making of specifications, and execution of working drawings of hoisting works, mine drainage and

ventilation plants, transportation systems, laying out of mines, etc. May constitute a part of Thesis work. Seniors, first and second terms, two afternoons per week.

10. *Fire-Assaying*.—Scorification and crucible assays of gold and silver ores, assay of copper mattes, corrected assays, assay of bullion, fire-assay of lead ores. A conference is held once a week. The nature of the processes is thoroughly explained and practical difficulties discussed. Three afternoons per week for one term, Junior year, in E. M. and C. and M. courses. *Text-Book*.—Ricketts & Miller, "Notes on Assaying."

Department of Metallurgy and Ore Dressing.

Professor SCHULZE, and Mr. ———.

The work in this department is designed to give students a thorough training in all branches of Metallurgy, and in methods of concentrating and dressing ores.

It is recognized that a school cannot give students, in the brief time at its disposal, that skill which comes from long practice, but it is the aim of the department to give such training in the fundamental principles and their application, that students may become useful immediately on their entrance into the actual practice of their chosen profession.

An important feature of the instruction in this department is original, experimental investigation in the concentration and metallurgical treatment of various ores.

Laboratory Work.—Memoirs, reports on visits to metallurgical work, and the solution of problems relating to Metallurgy and Ore Dressing, are given due prominence in the Course.

Work is given as follows:

1. *General Metallurgy and Metallurgy of Iron*.—Begins with general principles, including properties of metals and alloys, fuels, fluxes, calculation of charges, general study and classification of furnaces, followed by a study of processes employed for the production of cast iron, wrought iron and steel. *Text-Book*.—Roberts-Austin's Introduction. For reference, Turner's Metallurgy of Iron and Howe's Metallurgy of Steel. Juniors, second term, five hours per week.

2. *Metallurgy of Gold and Zinc*.—Lectures and recitations. *Text-Book*.—Rose's Metallurgy of Gold. For reference on zinc, Schnabel's Metallurgy. Juniors, E. M. and C. and M. courses, third term, five hours per week.

3. *Metallurgy of Lead and Silver*.—Lectures and recitations. Hofman's Metallurgy is used as a test for lead and desilverization of base bul-

lion, and Collins' Metallurgy of Silver for wet processes of silver extraction. Seniors, E. M. and C. and M. courses, first term, five hours per week.

4. *Metallurgy of Copper, Nickel, Mercury, Tin, Antimony.*—Peter's Metallurgy of Copper is used as text-book and followed by lectures on the other metals named, with Schnabel's Metallurgy for reference. Seniors, E. M. and C. and M. Courses, second term, five hours per week.

5. *Metallurgy of Steel.*—Campbell's Manufacture and Properties of Structural Steel is used as a text-book. Seniors, C. and M. and C. E. courses, first term, three hours per week.

6. *Metallurgical Laboratory.*—Heat treatment of steel, pyrometric measurements, microscopical examination of metals and alloys. Tests of ores by cyaniding, chlorination, amalgamation, lixivation, roasting in reverberatories and smelting in blast furnace. *Text-Book.*—Howe's Metallurgical Laboratory Notes. Juniors, third term, Saturdays. Seniors, first and second term, Saturdays.

7. *Electrometallurgy.*—Lecture Course on electrolytic and electrothermic dissociation; processes and apparatus for reduction of aluminum, Sodium Magnesium, rare metals and electrolytic refining of copper, silver, etc. *Reference Book.*—Borcher's Electric Smelting and Moissau's Electric Furnace. Seniors, C. and M. Courses, three hours per week, second term.

7a. *Electrometallurgical Laboratory.*—Experiments in reduction of magnesium, aluminum, etc., and refining of copper and zinc. Seniors, C. and M. Courses, second term, two afternoons per week.

8. *Metallurgical Problems.*—Calculations for charges, heat equilibrium, blast furnace and regenerator dimensions, power consumption, etc. Seniors, C. and M. Course, third term, five hours per week.

9. *Metallurgical Designing.*—Students are required to design metallurgical, ore dressing and hoisting plants; to make out specifications and detailed estimates of cost. Seniors, E. M. and C. M. Courses, two afternoons, first term; three afternoons, second term.

10. *Ore Dressing.*—A Course on the principles, methods and mechanical appliances in use to-day for crushing, classification and concentration of all important ores; preparation of coal; magnetic separation. *Text-Book.*—Richard's Ore Dressing. Juniors, E. M. and C. and M. Courses, first term, three times per week.

10a. *Ore Dressing Laboratory.*—The object is to give the student experience in the more common methods of ore dressing, treated in the theoretical discussions and to afford him practice in the application of principles to the production of useful results. Juniors, E. M. and C. and M. Courses, first term, Saturdays.

11. *Metallurgy of Clays.*—This Course involves a study of clays—

their origin, distribution and uses, and the processes of manufacture of brick, terra cotta, sewer pipe, pottery, etc. Lectures and laboratory work, Senior year. Professors LADD and SCHULZE.

Shop Practice.

Mr. BOWEN and Mr. _____.

1. *Wood Work*.—The work in this Course begins with simple exercises in planing and marking with the gage and knife. It continues until the pupil has become thoroughly familiar with the use of the plane, level, square, gage, and knife. He is then given graded exercises covering rip and cross-cut sawing and sawing to a "fit." Following this comes work at joints designed to show the different methods of construction, glue joints, doweling, dove tails and braces. This work is supplemented by talks on the tools and work in hand, and each student is required to pass a written examination on notes covering the classification and use of hand tools and accessories.

Wood turning follows the above work, and is designed to familiarize the student with the use of the lathe. He is given graded exercises, beginning with a plane cylinder, embracing curves of various kinds and sizes, and ending with face plate work in rings, balls, goblets, vases, etc. On all the preliminary work students are required to use the tools in such a way as to make the use of sand paper unnecessary.

A final part of this Course is cabinet making, designed to give the student work on the planer, scroll-saw, mortise machine, etc. After becoming familiar with the different machines pattern-making is begun. The purpose of this work being to teach the student to make representative types of patterns from which castings may be made. The principles of the shrink rule are explained and drawings, such as are used in manufacturing plants, are made in order to teach the use of the finish marks, core boxes, and all conventional signs.

All work is done from drawings.

Freshmen class, two afternoons per week throughout the year.

2. *Forge Work*.—This Course begins with simple exercises in drawing, upsetting, bending, twisting, punching and welding. The work gradually becomes more difficult, such as making eye bolts, chains, tongs, etc., followed by ornamental work, in making benches, umbrella racks, waste baskets, etc. Tool making is then begun by making screw drivers, hammers, chisels, and a complete set of lathe tools, which will be used later in the machine shop. This work is fully illustrated by drawings and lectures on the subject, covering the properties of the different grades of iron and steel.

Great care is exercised to make the student familiar with the best grade of steel to be used for any required purpose, and the correct shape and temper necessary for the best work in cutting iron, steel, brass, stone, etc. Sophomore class, second term, two afternoons per week.

3. *Foundry Work*.—This Course begins with simple exercises in moulds and mixing and tempering sand. The best methods of ramming, gating, venting and pouring are taught. The principles of mixing, melting and casting of brass of different degrees of hardness are covered by lectures.

4. *Metal Work*.—This Course begins with chipping to a line, filing to a dimension and scraping to a surface plate. Machine operation is then begun, the principles and uses of the drill-press, lathe, planer, shaper and milling machine are taught by lectures followed by practical work at each machine. After a reasonable time skill is attained in operating the various machines through a course of graded exercises. Students are required to build complete machines designed by upper classmen or by the instructor. In this work use is made of the vernier micrometer, thread micrometer and gear-tooth calliper. The degree of accuracy thus acquired enables the student to use eye and hand in unison, and is a lasting benefit in teaching exactness in statement and measurement.

While this department contains the best of tools and machinery the effort is constantly made to encourage the student to use his judgment in developing new ideas and improving on existing methods.

English.

Mr. SCOTT.

There is a growing appreciation of the value, in practical affairs, of the ability to use language with ease, clearness and forcefulness. The importance of English composition as a mental gymnastics is being acknowledged as never before. More and more instructors in technical schools are recognizing the fact that the study of composition is not only an essential but a rudimentary part of all technical training.

1. *Rhetoric*.—*Lectures, Recitations and Theme Work*.—This Course is designed as a continuation of the subject as taught in the High Schools of the State. Short daily and longer bi-weekly themes are required of the student. Freshmen, three times a week, first and second term, and twice a week the third term. *Text-Book*.—Pearson's Principles of Expression.

2. *English and American Literature*.—This Course embraces a study of the history and development of English literature with detailed work on the masterpieces of British and American authors. Conferences, bi-weekly, Freshmen, throughout the year.

Modern Languages.

Mr. WILKINS.

The great quantity and worth of the technical literature in the French and German languages, added to their value as elements of liberal culture, make at least a reading knowledge of them practically a necessary part of an engineer's education.

The instruction in each language is designed to present the grammatical structure and the pronunciation of the tongue, to give some acquaintance with the masterpieces of its literature, and to confer such facility in translation as will enable the student to read with ease the language in both its literary and its scientific uses.

German.—Introductory lessons: Van Daell's Reader, Grammar and Composition, Schiller's "William Tell," Lessing's "Nathan der Weise," Goethe's "Hermann and Dorothea," and selections from other German authors.

The students in Scientific German read Gore's Scientific Reader. They are also required to do parallel reading in the current scientific magazines and standard scientific works. Sophomore year, five times per week.

French.—Grammar (continued); original exercises, Racine's "Phedre," "Le Roman d'un Jeune Homme Pauvre" (Feuillet), "L'Abbe Constantin" (Halevy), Herdler's Scientific French Reader, Marie's "Historie des Sciences."

Parallel reading, outside of that done in class, will be assigned, and will constitute part of the work on which the student is examined. Sophomore year, five times per week.

Spanish.—The growing demand for mining engineers and metallurgists in South and Central America, and in Mexico, where a knowledge of Spanish is almost an essential qualification, has been met by the establishment of a Course in this language in the School of Mines. The natural, or conversational method is followed exclusively, with Worman's First Spanish Book as introductory text, and Ramsey's "Modern Spanish" as a reference grammar.

The object is to give the student facility in the every-day speech of the people.

With the consent of the faculty students may elect Spanish as the required modern language.

LIST OF STUDENTS.

Graduate Department.

Name.	Dep't	Postoffice.	County.
UNIVERSITY SCHOLARSHIPS.			
AGRICULTURAL CHEMISTRY.			
Myers, Edgar C.....	Agr.	New Franklin.....	Howard
ENGLISH.			
Riggs, Jephtha, A. B.	Acad.	Excelsior Springs.....	Clay
Hamilton, Goldy Mitchell, A. B.	Acad.	Dwight, <i>Illinois</i>	
ECONOMICS.			
Nardin, William Thompson, A. B.	Acad.	Vandalla	Audrain
GREEK.			
Welch, John Gunn, A. B.....	Acad.	Columbia	Boone
HISTORY.			
Vaughn, Ernest VanCourt, B. L.	Acad.	Columbia	Boone
LATIN.			
Moore, Henry Thomas, A. B....	Acad.	Carrollton	Carroll
Stump, Margaret L., A. B.....	Acad.	Nevada	Vernon
MATHEMATICS.			
Walker, Mary Shore, A. B.....	Acad.	Columbia	Boone
Rabourn, Sara Brewer Frances, A. B.	Acad.	Centralla	Boone
POLITICAL SCIENCE AND PUBLIC LAW.			
Chasnoff, Jacob, A. E.....	Acad.	St. Joseph	Buchanan
ROMANCE LANGUAGES.			
Bedford, Frances Elizabeth, A. B.	Acad.	Billings	Christian
Other Graduate Students.			
Allinger, Henry Wesley, A. B....	Acad.	Bushton, <i>Kans.</i>	
Baker, Beulah Norville, A. B....	Acad.	Columbia	Boone
Roman, John Sidney, A. E.....	Acad.	Norborne	Carroll
Bond, Bessie Brown, A. B.....	Acad.	Ann Arbor, <i>Michigan</i>	
Bonnot, Edmond, A. B.....	Acad.	Bonnot's Mill	Osage
Borgstadt, Harry, A. B.....	Acad.	Concordia	Lafayette
Brinkley, Milo Hamilton, B. S., C. E.	Eng.	Linneus	Linn
Briscoe, Edward Andrew, B. S., E. E.	Eng.	Tipton	Moniteau
Brooks, Charles, A. B.....	Acad.	Salem, <i>Indiana</i>	

Name.	Dep't	Postoffice.	County.
Busch, Ella Adeline, A. B....	Acad.	Washington	Franklin
Daniels, Francis Potter, A. B., A. M.	Acad.	Alto, <i>Michigan</i>	
DuBols, Charles Clifford, A. B.	Acad.	Liberty, <i>Indiana</i>	
Eckhardt, Carl Conrad, A. B....	Acad.	Toledo, <i>Ohio</i>	
Eitzen, Meta, A. M.....	Acad.	Columbia	Boone
Elwang, William Wilson, Ph. B. A. M.	Acad.	Columbia	Boone
Ferguson, Alexander McGowen, M. S.	Acad.	Austin, <i>Texas</i>	
Gray, Nellie, A. B.....	Acad.	Columbia	Boone
Hageman, George W., A. B....	Acad.	Fitzgerald, <i>Georgia</i>	
Hoffman, Benjamin Franklin, M. S.	Acad.	Columbia	Boone
Horton, Henry Pomeroy, Ph. B.	Acad.	Columbia	Boone
Howard, Ida Elizabeth, A. B....	Acad.	Columbia	Boone
Ingold, Louis, A. B.....	Acad.	Wyaconda	Clark
Jesse, Richard Henry, Jr., A. B.	Acad.	Columbia	Boone
Johnson, Rachel, Univ. Chic....	Acad.	LaGrange	Lafayette
Kleinschmidt, Henry Schwing, B. S. C. E.....	Eng.	St. Louis City.....	
Lewis, Mary Elizabeth.....	Acad.	Springfield, <i>Ohio</i>	
Lowe, Collier Alden.....	Acad.	Columbia	Boone
Magruder, Frank Cecil, B. S. C. E.	Eng.	Appleton City	St. Clair
McCaleb, Rebecca Isabel, A. B.	Acad.	Tarkio	Atchison
Ogden, Robert Morris, B. S....	Acad.	Binghamton, <i>N. Y.</i>	
Organ, Minnie Katherine, B. L., A. M.	Acad.	Salem	Dent
Patterson, Walter Merriam, A. B.	Acad.	Parkville	Platte
Patzwald, Otto Reinhold, A. B.	Acad.	Columbia	Boone
Reed, Howard Sprague, A. B....	Acad.	North East, <i>Pennsylvania</i>	
Rice, DeWitt Talmage, B. S. M. E.	Eng.	Kearney	Clay
Robinson, Ernest Franklin, B. S. C. E.....	Eng.	Winchester, <i>Virginia</i>	
Rollins, William Benjamin, B. S. M. E.....	Eng.	Kearney	Clay
Shaefer, Jean Augusta, B. S....	Acad.	Columbia	Boone
Sinclair, Elizabeth May, B. L....	Acad.	Columbia	Boone
Smith, Earl Brenton, B. S. M. E.	Eng.	Altoona, <i>Iowa</i>	
Summers, Joseph S., A. B....	Acad.	Coffeyburg	Davless
Wallace, Jacob H., B. S. M. E.	Eng.	Altamont, <i>Illinois</i>	
Zeigel, William Henry, A. B....	Acad.	Boonville	Cooper

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Academic Department.

Name.	Postoffice.	County.
<i>Senior Class.</i>		
Abernathy, Robert Turner.....	Pierce City	Lawrence
Alexander, Wallace	Kirksville	Adair

List of Students.

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Name.	Postoffice.	County.
Allen, Elmer Jackson.....	Dadeville	Dade
Ammerman, Joseph William.....	Columbia	Boone
Anderson, Axel Isadore.....	Kansas City	Jackson
Barnes, Maude	Ft. Smith, Ark.....	
Bates, Leslie E.	Excelsior Springs	Clay
Birch, Frank Hewitt	Hannibal	Marion
Blodgett, Franc Mabel	Columbia	Boone
Bodenheimer, Sophie	Jefferson City	Cole
Borgstadt, Harry	Concordia	Lafayette
Brous, Bertrand Caley	Esrom	Barton
Brown, Harlan LeRoy	Trenton	Grundy
*Canada, Charles Waldow	Shafter	Linn
Carmack, James Abner	Cora	Sullivan
Carrington, Will John	Jefferson City	Cole
Canthorn, Bessie	Columbia	Boone
Conway, Julia Carlton	Columbia	Boone
Conway, Mary Ellen	Vandalla	Andrain
Coontz, Laura	Vandalla	Andrain
Corder, Lotta Frances	Corder	Lafayette
Cosby, Byron	Milford, Ill.....	
Crouch, Clarence Clinton	Columbia	Boone
DeBolt, Edith Lorestine	Chillicothe	Livingston
Deziel, Raymond	St. Gabriel de Brandon, Canada.	
Dockery, Leota Lillian	Kirksville	Adair
Donnell, Forrest C.	Maryville	Nodaway
Douglass, Ellen	Philadelphia, Pa.....	
Dungan, Edith Lucile	Oregon	Holt
Edwards, Eliza Russell	Columbia	Boone
Fair, Eugene	Gilman City	Harrison
Frazier, Leland	Marshall	Saline
Freeman, Herman Harrison.....	Paris	Monroe
Frieze, Everette	Seybert	Dade
Gray, Daniel Thomas	Nevada	Vernon
Gullion, Omar Ray	Maywood	Lewis
Hayhurst, Paul	Dunkirk, N. Y.....	
Hobart, Frank Grant	Sedalia	Pettis
Hoffman, Luella Dimmitt	Sedalia	Pettis
Hogsett, William Sloan	Kansas City	Jackson
Johnson, Grace G.	Hamilton	Caldwell
Jones, Abner	Columbia	Boone
Kelsey, Fred	Farmington, Wash.....	
Kennedy, Gertrude Sarah	St. Louis City.....	
Langsdale, Clifton	Kansas City	Jackson
Leffler, Shepard	Maryville	Nodaway
Liggett, Mrs. Gertrude Frisselle....	Stanberry	Gentry
Locke, Robert Hodge	Pattonsburg	Davless
Long, C. M.	Hallsville	Boone
Metzger, Violette Eugenia.....	Kansas City	Jackson
Moulton, Pearl	King City	Gentry
Moulton, Ella Lee	King City	Gentry
Munday, Emma	Canton	Lewis
McCarty, Amy Rowena	Hannibal	Marion
McGill, Caroline	Lebanon	Laclede
McGowan, Laura Taylor	Sedalia	Pettis
McKee, Herbert Nelson	Zalma	Bollinger
McMillen, Robert Nelson, Jr.....	Iola, Kas.....	
Nardin, George Frederic.....	Vandalla	Andrain
Nelson, Earl Fontaine.....	Milan	Sullivan
Niebriegge, William Frederick.....	Mt. Sterling	Gasconade
Potter, Maud	Columbia	Boone
Ridgeway, George Walter	Clark	Randolph
Riley, Floyd Burke	Kearney	Clay
Robinson, Thomas Wright, Jr.....	Macon	Macon

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Name.	Postoffice.	County.
Scott, Pryor Templeton	Richards	Vernon
Searcy, Laura Anita	Columbia	Boone
Setzler, Edward Allan	Kansas City	Jackson
Sewall, Helen Alberta	Farmington Falls, Maine	
Shellenberger, Walter Jeremiah	Mound City	Holt
Smith, Thomas K.	Glenwood	Schuyler
Stoner, Edith	Kansas City	Jackson
Varner, Calla	Union Star	DeKalb
Veatch, Otto	Jasper	Jasper
Walborn, Ira Guy	Orwigsburg, Pa.	
Walker, Charles Joseph	Columbia	Boone
Woods, Herbert Spencer	Versailles	Morgan
Wooldridge, Lula Belle	Boonville	Cooper
Wronker, Charlotte	Marshall	Saline
Zumbrunnen, Emile Miles	Braymer	Caldwell

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Junior Class.

Arthur, Walter	Avilla	Jasper
Beaumont, Amanda Lee	St. Joseph	Buchanan
Bedinger, Henry Garrett	Anchorage, Ky.	
Beery, Roy Funkhouser	Holt	Clay
Blodgett, Ralph Eugene	Columbia	Boone
Bowling, Charles Campbell	Columbia	Boone
Branham, Madeline	Columbia	Boone
Brooks, Clyde	Columbia	Boone
Brous, Mrs. Daisy Nebraska	Esrom	Barton
Brunjes, Ernest August	Cole Camp	Benton
Burns, Rosa Ella	St. Louis City	
Carter, Ewell Martin	Hallsville	Boone
Clevenger, Joseph Raymond	Excelsior Springs	Clay
Cobb, Samuel Franklin	Columbia	Boone
Cochel, Charlotte Calvin	Columbia	Boone
Cole, Redmond Selecman	Columbia	Boone
Comer, Edward Smith	Mound City	Holt
Comstock, Clark Wesley	King City	Gentry
Cosgrove, Daniel Watson	Boonville	Cooper
Dean, Finis	Eldorado Springs	Cedar
Dimmitt, Philip Vaughn	Columbia	Boone
Dyer, Roy Homer	Marshall	Saline
Edwards, Katherine	Columbia	Boone
Eltzen, Hertha A.	Columbia	Boone
Ferguson, James Taylor	Columbia	Boone
Fitch, Ruby	Warrensburg	Johnson
Fitch, Mary	Warrensburg	Johnson
Fore, Harry Franklin	Gentryville	Gentry
Frank, Simon Michael	St. Louis City	
Gentry, Lee Morrison	Sedalia	Pettis
Gleason, Roy Lee	St. Louis City	
Gray, Laura Lucile	Columbia	Boone
Green, Ernest Abner	De Soto	Jefferson
Guthrie, Fannie Virginia	Columbia	Boone
Harris, Anna Leigh	Tuxedo Park	St. Louis
Hartwell, Charles Norris	Teng Chow Fu, China	
Hawkins, George Lorimer	Paris	Monroe
Haynes, Eli Stuart	Trenton	Grundy
Hewitt, John V.	Shelbyville	Shelby
Heyd, Frank	Kirksville	Adair
Hollingshead, Ralph Earl	Joplin	Jasper
Horner, Glen Roy	Deepwater	Henry
Hume, Leslie Walker	Armstrong	Howard
Ingold, Warren	Wyaconda	Clark
Jackson, Ellza Lucile	Martinstown	Putnam
Johnson, Isabell	Columbia	Boone

Name.	Postoffice.	County.
Jones, Edna Bascom	Chillicothe	Livingston
Kern, Robert Russ	Kansas City	Jackson
Kilmer, Harry Edmund	Yorkshire, Iowa	
Kimpel, Ben Drew	Dermot, Ark.	
Kuns, Frank Oliver	Aspen, Colo.	
Leaphart, Charles William	Brookfield	Linn
Lewis, Mildred Durette	Columbia	Boone
Lowry, Ethelyn Margaret	Columbus, Kans.	
Lyon, Harris Merton	Kansas City	Jackson
Marks, Abe	Hot Springs, Ark.	
Marsh, Samuel Ferguson	King City	Gentry
Maxwell, Allen Arthur	St. Joseph	Buchanan
Monroe, Walter Scott	Albany	Gentry
Montgomery, Thomas Bell	Columbia	Boone
Myers, Robert Lee	Everton	Dade
McFarland, Daniel	Kansas City	Jackson
McGlothlin, Mary Edith	Columbia	Boone
Newman, John Henry	Fontainebleau	Andrew
Pearcy, Elmer Egerton	Thornfield	Ozark
Pierce, Harry Llewellyn	Columbia	Boone
Prentiss, Hally Morrison	Brooklyn, N. Y.	
Price, John Emmet	Harrisonville	Cass
Pulliam, Susie	Columbia	Boone
Read, Ella	Columbia	Boone
Rice, Samuel O.	Neosho	Newton
Robertson, Madge	Mexico	Andrain
Ross, Charles Griffith	Independence	Jackson
Schmitt, Clara	Lowry City	St. Clair
Schooling, Lacy Parks	Moberly	Randolph
Sears, Edward Nelson	Deer Ridge	Lewis
Simmons, Emma Gertrude	Berryville, Ark.	
Sisson, Stanley	Columbia	Boone
Smith, Gene Irvin	Monticello, Kas.	
Smoot, Willie Isadore	Columbia	Boone
Sneed, Carl Miller	Centralla	Boone
Stewart, George Earle	Columbia	Boone
Stump, Vivian French	Nevada	Vernon
Terrell, Gussie May	Macon	Macon
Underwood, George Arthur	Kansas City	Jackson
VanDemark, Martin Van Buren.	Clyde, Kan.	
Ward, James Gordon	Balm	Cedar
Wayman, Warrick Allen	Kansas City	Jackson
Weese, William Joshua	Athlestan, Iowa.	
Welty, Lois	Oregon	Holt
Westlake, Dixie	Columbia	Boone
Wiley, Frank Leslie	Ridgeway	Harrison
Williams, Olive	Carthage	Jasper
Wilson, Garland	Bethany	Harrison
Winslow, Margaret White	Kansas City	Jackson
Winslow, Mary Olive	Kansas City	Jackson
Winslow, Anna Elizabeth	Kansas City	Jackson
Wood, Harry Cunningham	New London	Ralls
Wood, Ben Artie	Holden	Johnson
Woodson, Thomas Dupuy, Jr.	Richmond	Ray
Wright, Anna Elizabeth	Norborne	Carroll
Wright, Porter	Chilhowee	Johnson
Zollinger, John H., Jr.	Otterville	Cooper

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Sophomore Class.

Adams, Wilkie Myrtle	Columbia	Boone
Alder, Ettie Mildred	Cane Hill	Cedar
Allen, Grace Lillian	Dadeville	Dade
Anderson, Mac	Columbia	Boone
Arnold, Marcia Louise	San Jose, Cal.	

Name.	Postoffice.	County.
Babcock, Frank Larue	Moberly	Randolph
Barry, Norman Clarke	Stroudsburg, Pa.	
Battersby, Richard Stanley	Sedalia	Pettis
Benedict, Stephen Gano	Salt Lake City, Utah.	
Bigger, Byrnie Elry	Laclede	Linn
Brown, Orville Allen	Monroe City	Monroe
Carr, Gloria Washington	Vandalia	Audrain
Carter, Aura Smith	Hallsville	Boone
Cochrane, Phillip Sidney	Antrim, N. H.	
Cohen, Settchen	St. Louis City	
Cole, Charles Arthur	Quaker	Washington
Cole, Winfred Bryan	Quaker	Washington
Colvin, George Henry	Newcomer	Chariton
Covington, Louise Isabelle	Dexter	Stoddard
Covington, Ruth Olive	Dexter	Stoddard
Crouch, Mente Leslie	Columbia	Boone
Dale, Fred Hiner	Milo	Vernon
Daley, Lyle Miner	Hamilton	Caldwell
Dew, Samuel Arthur	Kansas City	Jackson
Divers, William Perry	Auxvasse	Callaway
Dooley, Marion Sylvester	Houston	Texas
Dudley, Frank Wesley	Caruthersville	Pemiscot
Eastman, Cecil Klefer	Winston	Davless
Eastman, Fred Ward	Winston	Davless
Ellis, James Daniel	Kansas City	Jackson
Fair, Mrs. Alta Lorenz	Kirksville	Adair
Fleming, Edwin D. Rush	Columbia	Boone
Floyd, Monroe Al	Blackburn	Saline
Foglesong, Ella Sarah	Columbia	Boone
Fristoe, Charles Wisdom	Palo Pinto	Benton
Galbraith, Eliza	Everton	Dade
Gale, Henry Lee	Fredericktown	Madison
Godsey, Charles LeRoy	Hopkins	Nodaway
Goodson, John Virgil	New Cambria	Macon
Gordon, Sadie Long	Columbia	Boone
Gordon, Nellie Madge	Columbia	Boone
Gordon, Laura Virginia	Columbia	Boone
Grossenbacher, John Gosser	California	Moniteau
Harrison, Carl	Mexico	Audrain
Harrison, Jane Annetta	La Plata	Macon
Henderson, Mabelle	St. Louis City	
Hetherington, Mrs. Daisy Alford ..	Columbia	Boone
Hoffman, Dimmitt Heard	Sedalia	Pettis
Holloway, Russell Edward	Rowena	Audrain
Howell, Daniel Voorhees	Brookfield	Linn
Hurwitz, Wallie Abraham	Joplin	Jasper
Ikenberry, Josephus Henry	Sedalia	Pettis
Jackson, Andrew, Jr.	Carrollton	Carroll
Jacobs, Floyd Emory	Kansas City	Jackson
Jesse, Mary Polk	Columbia	Boone
Jesse, Caroline Elizabeth	Columbia	Boone
Johnston, Alice Ewing	Boonville	Cooper
Jones, Robert William	Columbia	Boone
Kaune, Quintus Arthur	Butler	Bates
Lash, Anna Katharine	Kansas City	Jackson
Lhamon, Ruskin	Columbia	Boone
Link, Eunice Virginia	Kirksville	Adair
Lipscomb, Virginia Lee	Columbia	Boone
Loeb, Leo	Rich Hill	Bates
Long, James Frank	Hannibal	Marion
Lowell, Walter Ora	Trenton	Grundy
Mahan, Dulaney	Hannibal	Marion
Marsh, Annie Elizabeth	Columbia	Boone
Martin, Joshua Blaire	Blue Mound, Ill.	
Miller, Edwin Burch	Boonville	Cooper

Name.	Postoffice.	County.
Moody, Levi	Columbia	Boone
Moody, Mrs. Anna Pearson.....	Columbia	Boone
Moore, Ethel Clare	Edinburg	Grundy
McCallon, Emma	Rosendale	Andrew
McCormick, Maud	Hardin	Ray
McCune, Eula	Bowling Green	Pike
Nacy, Frances Winifred	Jefferson City	Cole
Newkirk, Samuel Drake	Tipton	Moniteau
Organ, Daisy Elberta	Salem	Dent
Ozment, Burr Howey	Carthage	Jasper
Otis, Merrill Edward	Hopkins	Nodaway
Peck, Henry Gordon	Columbia	Boone
Pirkey, Marlon Ely	St. Joseph	Buchanan
Plunkett, Frank Willis	Columbia	Boone
Powers, Candace	Paris	Monroe
Price, Lakenan Moss	Columbia	Boone
Quayle, Maude Cannell.....	Columbia	Boone
Robinson, Florence R.	Maryville	Nodaway
Robinson, Charles Edward	Joplin	Jasper
Robnett, Ethel Bond	Columbia	Boone
Rudasill, Marie Lucy	Hollensville	Audrain
Ruenzi, Williametta	Columbia	Boone
Scurlock, Lillian Mary	Columbia	Boone
Searcy, Chloe	Columbia	Boone
Sears, Mary Elizabeth	LaPlata	Macon
Seymour, Elba	Drexel	Cass
Shelton, Clara Lillian	Windsor	Henry
Shockley, Maude Alice.....	Columbia	Boone
Skidmore, Mark	Springfield	Greene
Smith, Mary Madaline	Glenwood	Schuyler
Snyder, Edith Logan	Hannibal	Marion
Sparks, Raymond Elmore	Kansas City	Jackson
Stean, Saldee May	Arrow Rock	Saline
Stewart, Faye Louise	Chillicothe	Livingston
Stout, John Arthur.....	Kansas City	Jackson
Terrell, Ted Allen	Macon	Macon
Thompson, Rodney Emmett.....	Marshall	Saline
Townsend, Will	Bollivar	Polk
Trewett, Fred Lee.....	Maryville	Nodaway
Tuggle, Floyd Smith	Gallatin	Davies
White, Hazel	Norborne	Carroll
Whitmore, George Rowe	Old Orchard	St. Louis
Williams, Harold Spencer	Warrensburg	Johnson
Winn, Beatrix	Independence	Jackson
Woodward, Edward Homer	Brunswick	Chariton

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Freshman Class.

Alderman, Meril Justus	Maryville	Nodaway
Alford, Hendry James	Lawrence, Kas.....	
Allen, Edith May	Joplin	Jasper
Anderson, Harvey Winfred	Goodwater	Iron
Archer, Perry Clifford	Shibley's Point	Adair
Arnold, Clara May	Ft. Smith, Ark.....	
Atkins, Virginia Augusta.....	Greenville	Wayne
Bagby, John Humphrey	Armstrong	Howard
Bailey, Walter Elijah	Carthage	Jasper
Baker, Bettie May	Columbia	Boone
Barkley, Grace	Henry	Ray
Bates, George Hubert	Lexington	Lafayette
Bell, Lewis Benton	Hatch	Ralls
Boland, Olive Myrtle	Carthage	Jasper
Booth, Acena Mae	Columbia	Boone
Brunner, Glen Lamer	Kansas City	Jackson
Bullard, H. Hays	Kirkwood	St. Louis

Name.	Name.
Buller, Edith Cornella	Lamar
Burkland, Herbert Charles	Lancaster
Burns, Edith Ellyn	Osceola, Iowa
Burruss, John Lewis	Columbia
Carter, Francis Floyd	Farmington
Cauthorn, Joseph Lurton	Mexico
Cauthorn, Julia Morris	Columbia
Chew, Clara O'Fallon	Kirkwood
Chew, Flower	Kirkwood
Childs, Clinton Stibbs	St. Louis City
Cole, Mary Elizabeth	Columbia
Conger, Gertrude Melcora	Columbia
Crews, John Jeter	Mexico
Croy, Homer	Maryville
Dakan, Carl Spencer	Stanberry
Dandy, Walter Edward	Sedalla
Daniel, Harold Speed	Mexico
Daubin, Freeland Allan	Lamar
Davenport, Sara Jeannette	Columbia
Davidson, John Helm	Hannibal
Denslow, Ray Vaughn	Macon
Diggs, Elizabeth	Poplar Bluff
Dill, Martha Emeline	Gas City, Ind.
Dimmitt, Joseph Bowles	Columbia
Dimmitt, Bertha	Columbia
Dinkle, Mary Leta	Hilldale
Duncan, Mabel Helen	Columbia
Duncan, Myrtle	Columbia
Edwards, Rachel	Columbia
Ellison, Cornelia Martha	Maryville
Elmore, Lillian Myrtle	Webb City
Evans, Bessie May	Vandalla
Faller, Jessie	Indian Grove
Feld, Hyman	New York, N. Y.
Ferguson, Mrs. Alex. McGowen	Austin, Texas
Figge, Junior Christian	Lancaster
Fitzgerald, Ruth	Sedalla
Foglesong, Anna Elizabeth	Columbia
Frakes, Susie Henderson	Columbia
Fry, William Wallace, Jr.	Mexico
Gaunt, Frank Peyton	St. Louis City
Gibson, Wilber James	Grant City
Gill, Mary Selden	Mexico
Gordon, Helen Carr	Columbia
Grace, Edith Emily	Three Rivers, Mass.
Grady, Mary Elizabeth	Miami
Graf, Leander	Hermann
Griffith, India Corinne	Columbia
Gulsinger, Mary Annette	Harrisonville
Hall, Ida May	Columbia
Harlan, Bertha Marion	Kansas City
Hays, Eleanor Bessie	Midway
Hazel, Claude Calhoun	Caruthersville
Hendrickson, Blanche	Webb City
Henley, James Conrad	Pleasant Hill
Hewitt, Dottie	Mt. Washington
Hicklin, Maurice	Lexington
Hoecker, Charles Henry	St. Louis City
Hogan, Bert	Maryville
Horton, Donia Mae	Columbia
Hostetter, Lily Sue	Bowling Green
Houston, Bruce	Hopkins
Hunter, William Joseph	Benton
Ilgenfritz, Will McNair	Sedalla
James, Luther Scott	Marshall
	Barton
	Schuyler
	Boone
	St. Francis
	Andrain
	Boone
	St. Louis
	St. Louis
	Boone
	Boone
	Andrain
	Nodaway
	Gentry
	Pettis
	Andrain
	Barton
	Boone
	Marion
	Macon
	Butler
	Boone
	Boone
	Howard
	Boone
	Boone
	Boone
	Nodaway
	Jasper
	Andrain
	Chariton
	Schuyler
	Pettis
	Boone
	Boone
	Andrain
	Worth
	Andrain
	Boone
	Saline
	Gasconade
	Boone
	Cass
	Boone
	Jackson
	Boone
	Pemiscot
	Jasper
	Cass
	Jackson
	Lafayette
	Nodaway
	Boone
	Pike
	Nodaway
	Scott
	Pettis
	Saline

Name.	Postoffice.	County.
Johnson, George Ray	Princeton	Mercer
Johnson, Sue Broine	Barry, <i>Ill.</i> .....	.....
Johnson, Waldo P.	Osceola	St. Clair
Johnson, Katherine	Palmyra	Marion
Johnston, Ben Bourne	Ft. Smith, <i>Ark.</i> .....	.....
Johnston, Margaret Bass	Columbia	Boone
Jordin, Imogene	Gallatin	Davless
Kavanaugh, Roscoe Essex	New Hampton	Harrison
Keller, Adam Bruce	Windsor	Henry
King, George Franklin	Sweet Springs	Saline
Klass, Percy Marx	Columbia	Boone
Klein, Laura Mahone	Ft. Smith, <i>Ark.</i> .....	.....
Kurtz, John Albert	Lockwood	Dade
Lain, Fred A.	Slater	Saline
Landers, Effie	West Plains	Howell
Langenberg, Emma	St. Louis City .....	.....
Langsdale, John Marion	Kansas City	Jackson
Le Compte, Jewette Emeline	Cassville	Barry
Le Compte, Pearle Ault	Pierce City	Lawrence
Lewis, Carl Orville	Columbia	Boone
Lucitt, Gardiner Joseph	Kansas City	Jackson
Matthews, William Chaldee	Aurora	Lawrence
Megee, Otto Kent	Moberly	Randolph
Metzger, Violette Eugenia	Kansas City	Jackson
Miner, Elbert Spencer	Ridgeway	Harrison
Minor, Louella	Easton	Buchanan
Montgomery, Thomas Franklin	Bolckow	Andrew
Mosley, Fred Earnest	Columbia	Boone
Mudd, Grace Belle	Drexel	Cass
Murta, Margaret	Ft. Smith, <i>Ark.</i> .....	.....
McCarroll, Ben	Bloomfield	Stoddard
McCarthy, Marie Louise	Carthage	Jasper
Nelson, William Pierrepont, Jr.	St. Louis City .....	.....
Nesbitt, Ethel Amanda	St. Joseph	Buchanan
Newman, Meyer Harris	New York, <i>N. Y.</i> .....	.....
Northcutt, Ina Klosking	Columbia	Boone
Nulton, Perley Edgar	Hartford	Putnam
Orr, Thomas Grover	Carrollton	Carroll
Packard, Bessie Araminta	Cameron	Clinton
Patton, James Henry, Jr.	Paynesville	Pike
Patton, Lowell Russell	Paynesville	Pike
Pickett, Nettie Violet	Trenton	Grundy
Porter, Edward Winslow	Stewartsville	Clinton
Prentiss, Morton McNutt	St. Louis City .....	.....
Price, Elizabeth Johnson	Mexico	Audrain
Pryor, Herbert	Paynesville	Pike
Railey, Thomas Tarlton	Harrisonville	Cass
Rea, James Lennox	Scranton, <i>Pa.</i> .....	.....
Richards, Elizabeth	Columbia	Boone
Ridge, Frank Isaac	Kansas City	Jackson
Robinson, Elizabeth	Fayette	Howard
Russell, Rosamond	Kansas City	Jackson
Samter, Thyra	Ft. Smith, <i>Ark.</i> .....	.....
Secord, Lynn Newman	Memphis	Scotland
Seever, Richard Henry	Pawnee, <i>Okla.</i> .....	.....
Semmes, Raphael Eustace, Jr.	Memphis, <i>Tenn.</i> .....	.....
Sexton, Stella	Kansas City	Jackson
Shay, John James	Macon	Macon
Shepard, Clyde Sheldon	Caruthersville	Pemiscot
Shoemaker, Rose May	Darlington	Gentry
Small, Andrew Victor	Sedalla	Pettis
Sneed, Marguerite	Sedalla	Pettis
Spangler, Kathryn E.	Clinton	Henry
Spotts, Thomas Harris	Armstrong	Howard
Spragg, Earle Gordon	Ridgeway	Harrison

Name.	Postoffice.	County.
Stephens, Otta, Jr.	Columbia	Boone
Stephens, John Henry, Jr.	Kansas City	Jackson
Stevenson, Clarence Logan	Savannah	Andrew
Stewart, Douglass, Jr.	Chillicothe	Livingston
Stewart, Robert Franklin	Webb City	Jasper
Stickerod, Lydia Adeline	Rockport	Atchison
Stine, Dan Gish	Lawrenceville, <i>Ill.</i> .....	.....
Sweeney, Edward Edmond	Ravenwood	Nodaway
Switzer, Fred Roscoe	Clarence	Shelby
Switzler, Thomas Wilson	Omaha, <i>Neb.</i> .....	.....
Taylor, Robert Erskine	Miami	Saline
Taylor, Jeannie	Mt. Moriah	Harrison
Taylor, Howard Charles	Columbia	Boone
Terrill, Arthur Hammett	Huntsville	Randolph
Utterback, Leslie Lamar	Florida	Monroe
Vance, Bernice Wilson	Marshall	Saline
Vogt, George Francis	Stanberry	Gentry
Wadell, Elsie	Kansas City	Jackson
Waincott, Richard Sparks	Nevada	Vernon
Walker, Charles Fisher	Armstrong	Howard
Walker, Mamie Clare	Columbia	Boone
Welch, Mary Elizabeth	Elsberry	Lincoln
Weldon, Matie Elizabeth	Breckenridge	Caldwell
Wharton, Mary	Columbia	Boone
Wilder, Ralph Barnabas	Ladonia	Audrain
Williams, Roy	Ridgeway	Harrison
Willis, Fiddle	Columbia	Boone
Wilson, Ralph Waldo	Barry	Clay
Wilson, Floyd Johnson	La Belle	Lewis
Wishart, Mary Belle	Kansas City	Jackson
Wright, James Kelly	Columbia	Boone
Zebold, Robert Andrew	Appleton City	St. Clair

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Special Students.

Allen, Jessie May	Wichita, <i>Kans.</i>
Arnold, Mrs. Medora Castillo	San Jose, <i>Cal.</i>
Botts, Miss Benson	Mexico	Audrain
Bouchelle, Emma Octavia	Columbia	Boone
Burgess, Lucie Ellen	Olathe, <i>Kan.</i> .....	.....
Burns, Raleigh Lamar	Lathrop	Clinton
Bush, Estelle	Columbia	Boone
Campbell, Mary Zilpha	Columbia	Boone
Chapman, Benjamin Eader	Hamburg, <i>Iowa.</i> .....	.....
Chitty, William Dixon	Columbia	Boone
Conger, Mrs. Fannie M.	Columbia	Boone
Cook, William Hutchinson	Columbia	Boone
Cook, Mrs. W. H.	Columbia	Boone
Cresap, Mrs. Martha Payne	Columbia	Boone
Curtis, Mrs. Marion Hitchcock	Columbia	Boone
Daniels, Mrs. Louise Grimmer	Alto, <i>Mich.</i> .....	.....
Davis, Louise Carrington	Bowling Green	Pike
Davis, Marinda Polly	Acworth, <i>N. H.</i> .....	.....
Dix, Cleopatra	Kansas City	Jackson
Dorsey, Florence Louise	Gillespie, <i>Ill.</i> .....	.....
Duncan, Arthur Chester	Villanora, <i>Pa.</i> .....	.....
Floyd, Mrs. Myrtle Gladys	Blackburn	Saline
Foglesong, Lenna M.	Columbia	Boone
Franse, Rusha May	Hydro, <i>Okla.</i> .....	.....
Freeman, Floyd Conger	Chaffee, <i>N. Y.</i> .....	.....
Goodwin, Mary Littleton	Odessa	Lafayette
Gordon, Sophia Everest	Columbia	Boone
Greensfelder, Mrs. Moses B.	Clayton	St. Louis
Griffith, Maude	Deepwater	Henry
Gruner, Caroline Frances	St. Louis City .....	.....

Name.	Postoffice.	County.
Hamilton, Elizabeth Agnes	Orrick	Ray
Hann, Jennie Etta	Columbia	Boone
Harris, Lyda V. Drummond	Emporia, <i>Kans</i>	
Hedges, Peter Thomas	Purdin	Linn
Hedges, Mrs. Ina	Purdin	Linn
Henderson, Louise	Nashville, <i>Tenn</i>	
Hertig, Mrs. Marlon Willis	Columbia	Boone
Hogue, Erle	Bowling Green	Pike
Howell, Bessie	Paris	Monroe
Jones, Agnes Pauline	Edina	Knex
Jones, Mrs. Belinda Nowlin	Columbia	Boone
Jones, Mrs. Ida May Finegan	Columbia	Boone
Killam, Susan Elizabeth	Winfield	Lincoln
Laws, Lucy Rhoda	Harrodsburg, <i>Ky</i>	
Lawson, Mrs. Frances Chase	Columbia	Boone
Lockwood, Marvin Barnett	Columbia	Boone
Long, Clarence Columbus	Whiteside	Lincoln
Macfarlane, Mrs. Alice O'Rear	Columbia	Boone
Mackey, Arthur Everett	Fulton	Callaway
Mason, Allicia Trellesse	Columbia	Boone
Menard, Rosa Caroline	St. Louis City	
Miller, Mrs. Helen G.	Columbia	Boone
Moore, Mrs. Otis J.	Columbia	Boone
Parker, Myrtle	Columbia	Boone
Phelps, Edith Allen	Columbia	Boone
Price, Lacy Pittman	Brunswick	Chariton
Riley, Eby	Boulder, <i>Colo</i>	
Salmon, Kathleen Letcher	Tarkio	Atchison
Sanders, Frances Emily	St. Joseph	Buchanan
Shaw, Mayme	Columbia	Boone
Steele, Eva	Columbia	Boone
Strange, George Howel	Blue, <i>I. T</i>	
Strickler, Ruby Margaret	Columbia	Boone
Sturtevant, Mrs. Bessie F.	Columbia	Boone
Tanner, Robert Turner	Boonsboro	Howard
Terrell, Mrs. Luther Lynch	Columbia	Boone
Todd, Elizabeth P.	Columbia	Boone
Tull, Caroline	Ridgeway	Harrison
Weeks, Mrs. Arnoldia	Columbia	Boone
Whipple, Leonida Rutledge	St. Louis City	
Whitmer, Mrs. Helen Crozier	Columbia	Boone
Willis, Snowden Boyd	Columbia	Boone

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Department of Education.

Name.	Postoffice.	County.
Abernathy, Robert Turner	Pierce City	Lawrence
Allen, Edith May	Joplin	Jasper
Ammerman, Joseph Wm.	Columbia	Boone
Arnold, Clara May	Ft. Smith, <i>Ark</i>	
Barnes, Maude	Ft. Smith, <i>Ark</i>	
Bates, Leslie E.	Excelsior Springs	Clay
Barkley, Grace	Henry	Ray
Beaumont, Amanda Lee	St. Joseph	Buchanan
Bodenheimer, Sophie	Jefferson City	Cole
Boman, John Sidney	Norborne	Carroll
Bond, Bessie Brown	Ann Arbor, <i>Mich</i>	
Borgstadt, Harry	Concordia	Lafayette

Name.	Postoffice.	County.
Botta, Benson	Mexico	Andrain
Brous, Bertrand Carley	Farom	Barton
Buller, Edith Cornella	Lamar	Barton
Canada, Charles Walden	Shafter	Linn
Carmack, James Abner	Cora	Sullivan
Carr, Gloria Washington	Vandalla	Andrain
Cauthorn, Bessie	Columbia	Boone
Cochel, Charlotte Calvin	Columbia	Boone
Cole, Redman Selecman	Columbia	Boone
Comer, Edward Smith	Mound City	Holt
Conway, Mary Ellen	Vandalla	Andrain
Coonts, Laura	Vandalla	Andrain
Corder, Lotta Frances	Corder	Lafayette
Cosgrove, Daniel Watson	Boonville	Cooper
Crouch, Clarence Clinton	Columbia	Boone
Dean, Finis	Eldorado Springs	Cedar
De Bolt, Edith Lorestine	Chillicothe	Livingston
Divers, William Perry	Auxvasse	Callaway
Dudley, Frank Wesley	Caruthersville	Pemiscot
Dungan, Edith Lucile	Oregon	Holt
Edwards, Eliza Russell	Centralla	Boone
Edwards, Katherine	Columbia	Boone
Eltzen, Hertha	Columbia	Boone
Fair, Eugene	Gilman City	Harrison
Foglesong, Lenna Marie	Columbia	Boone
Foglesong, Anna Elisabeth	Columbia	Boone
Frieze, Everett	Bona	Dade
Gray, Laura Lucile	Columbia	Boone
Guthrie, Fannie Virginia	Columbia	Boone
Harris, Anna Leigh	Tuxedo Park	St. Louis
Hawkins, George Lorimer	Paris	Monroe
Hoffman, Luella D.	Sedalia	Pettis
Jackson, Andrew, Jr.	Carrollton	Carroll
Jackson, Eliza Lucile	Martinstown	Putnam
Johnson, Isabel	Columbia	Boone
Jones, Abner	Columbia	Boone
Jones, Edna B.	Chillicothe	Livingston
Kelsey, Fred	Farmington, Wash.	
Kennedy, Gertrude Sarah	St. Louis City	
Kern, Robert Russ	Kansas City	Jackson
Lash, Anna Katherine	Kansas City	Jackson
Lewis, Mildred Durette	Columbia	Boone
Liggett, Mrs. Gertrude F.	Stanberry	Gentry
Link, Eunice Virginia	Kirksville	Adair
Lowry, Ethelyn Margaret	Columbus, Kan.	
Marsh, Anna Elizabeth	Columbia	Boone
Moore, Ethel Clare	Edinburg	Grundy
Moulton, Ella Lee	King City	Gentry
McCarty, Amy Rowena	Hannibal	Marion
McCormick, Maude	Hardin	Ray
Nacy, Frances Winifred	Jefferson City	Cole
Powers, Candace	Paris	Monroe
Pryor, Herbert	Paynesville	Pike
Pullam, Susie	Columbia	Boone
Ridgeway, George Walter	Clark	Randolph
Russell, Rosamond	Kansas City	Jackson
Salmon, Kathleen L.	Tarkio	Atchison
Schmitt, Clara	Lowry City	St. Clair
Schooling, Lacy Parks	Moberly	Randolph
Scott, Pryor Templeton	Richards	Vernon
Searcy, Laura Anita	Columbia	Boone
Setzler, Edward Allan	Kansas City	Jackson
Sexton, Stella	Kansas City	Jackson
Shellenberger, Walter Jeremiah	Mound City	Holt

Name.	Postoffice.	County.
Shoemaker, Rose May	Darlington	Gentry
Simmons, Emma	Berryville, Ark.....	
Sisson, Stanley	Columbia	Boone
Skidmore, Mark	Springfield	Greene
Smith, Mary M.	Glenwood	Schuyler
Stean, Saidee May	Arrow Rock	Saline
Steel, Eva	Columbia	Boone
Stewart, Fay Louise	Chillicothe	Livingston
Stump, Vivian French	Nevada	Vernon
Tennyson, Luther Wesley.....	Belgrade	Washington
Underwood, George Arthur	Kansas City	Jackson
Wayman, Warren Allen	Kansas City	Jackson
Weese, William Joshua	Athelstan, Iowa.....	
Weldon, Mattie Elizabeth	Breckenridge	Caldwell
Welty, Lols	Oregon	Holt
Winslow, Margaret White	Kansas City	Jackson
Winslow, Anna Elizabeth	Kansas City	Jackson
Winslow, Mary Olive	Kansas City	Jackson
Wishart, Mary Belle.....	Kansas City	Jackson
Woods, Herbert Spencer	Versailles	Morgan
Wooldridge, Lula Belle	Boonville	Cooper
Zollinger, John H.	Otterville	Cooper

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Law Department.

Name.	Postoffice.	County.
<i>Senior Class.</i>		
Anamosa, George Willis	Sedalia	Pettis
Barry, Norman Clarke.....	Stroudsburg, Pa.....	
Baskerville, Lucien Bertram.....	Appleton City	St. Clair
Bottom, Claude Bernard.....	Breckenridge	Caldwell
Butler, Franklin	Des Moines, Iowa.....	
Davis, Joseph Thomas.....	Berger	Franklin
Doll, Alva Chester.....	Hamilton	Caldwell
Doughty, John Alfred.....	Farmington	St. Francois
Finley, Ralph Tilden.....	Greenfield	Dade
Foard, John Pender.....	Flatwood	Ripley
Fulton, Clarence Fleetwood.....	Patterson	Wayne
Hall, Morris VanEvrle.....	St. Joseph	Buchanan
Haw, Joseph Lindsay, Jr.....	Farmington	St. Francois
Henwood, Berryman	Oakwood	Marion
Hicks, Virgil	Boles, Ky.....	
Ingalls, Thomas Garfield	Lowell, Mass.....	
Kahn, Jesse Jacob.....	Bigelow	Holt
Kautz, Less Ross.....	Hamilton	Caldwell
Kenton, Joseph Wheeler.....	Durant, I. T.....	
Landon, James Erocia.....	Marshall	Saline
McConnell, Rufus Ward.....	Greenfield	Dade
Napton, John Reid.....	Marshall	Saline
Oliver, Robert Burett, Jr.....	Cape Girardeau....	Cape Girardeau
Pearcy, Elmer Egerton.....	Thornfield	Ozark
Price, Robert Beverly, Jr.....	Columbia	Boone
Robinson, Thomas Wright.....	Macon	Macon
Romjue, Milton Andrew.....	Lovelake	Macon
Rose, Marlon Amos.....	Benton, Ill.....	
Sawyers, William Gaston	Maryville	Nodaway
Schuermeier, William Frederick...	St. Louis City.....	

Name.	Postoffice.	County.
Schulze, Fred William.....	Vandalla	Andrain
Stafford, Nean	Buffalo	Dallas
Storm, Fred Erwin.....	Maryville	Nodaway
Summerville, Robert Oscar.....	Chillicothe	Livingston
Thurman, Harold Clarke.....	Lamar	Barton
Williams, Curtis	Spring Garden, Ill.....	
Williamson, John Robert.....	New Hampton	Harrison
Wulf, Hans Jacob.....	St. Louis City.....	

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Junior Class.

Alexander, George Forest.....	Gallatin	Davies
Anderson, Roscoe F.....	LaBelle	Lewis
Blaine, William Webster.....	Orrick	Ray
Bryant, Joseph Franklin, Jr.....	Bethany	Harrison
Carter, Asa Leroy.....	Roby	Texas
Catron, Thomas Kent.....	Kansas City	Jackson
Chastain, DeWitt Clare.....	Hume	Bates
Cole, Norman John.....	Quaker	Washington
Collier, Henry Allison.....	Columbia	Boone
Cottrill, Bernit Clyde.....	Savannah	Andrew
Currie, Malcolm	Odebolt, Iowa.....	
Davis, Charles B.	Oakwood	Ralls
Dorsey, Machir January.....	Columbia	Boone
Durfee, Edward Eugene.....	Falls City, Neb.....	
Fish, Sherman Eugene.....	Bolivar	Polk
Gentry, Renben Joel.....	Sedalia	Pettis
Green, Ernest Abner.....	Desoto	Jefferson
Greensfelder, Hattie	Central	St. Louis
Guitar, Abiel Leonard.....	Columbia	Boone
Hamilton, Ralph Scott.....	East Palestine, Ohio.....	
Hart, Luke Edward.....	Maloy, Iowa.....	
Hedrick, Lawrence Hiskell.....	Edgemont, S. D.....	
Holman, Henry Edgar.....	Kent, Iowa.....	
Houck, Rudolph Senn.....	Bloomfield	Stoddard
Johnson, Victor Tucker.....	Centralla	Boone
Johnson, Roy Meredith.....	Ft. Smith, Ark.....	
Lhamon, Burgess Frank.....	Columbia	Boone
Maddox, Roy Oswald.....	Bucklin	Linn
Murrell, Fred Emmett.....	Lancaster	Schuyler
Neville, Percy Lee.....	Marshall	Saline
North, Edward Scarritt.....	Kansas City	Jackson
Northcutt, Arthur Harrison.....	Winters, Cal.....	
Nugent, James Edward	Paris	Monroe
Potter, James Arthur.....	Mt. Vernon	Lawrence
Reid, James D.....	Slater	Saline
Rothwell, James Raymond.....	Warrensburg	Johnson
Sallor, Malcolm Everett.....	Montgomery City	Montgomery
Selgfried, Alexander Augustus.....	Adrian, Ill.....	
Silverman, Eugene	St. Joseph	Buchanan
Suddath, William Edward.....	Warrensburg	Johnson
Welborn, Arthur Tarance	Bloomfield	Stoddard
Williams, Francis Emmett.....	Irondale	Washington
Wilson, Charles Clarence.....	Shamokin, Pa.....	

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First Year Class.

Allen, Elbert Fisher.....	Livingston, Mont.....	
Anderson, John Malcom.....	Carlinville, Ill.....	
Axline, Aaron Guy.....	Nevada	Vernon
Banister, Frank Nathaniel.....	Kansas City	Jackson
Bishop, John Ebenezer.....	Miami	Saline
Boley, John Wesley.....	Mexico	Andrain
Bonfoey, Lawrence Powers.....	Unionville	Putnam

Name.	Postoffice.	County.
Briggs, Lee Roscoe.....	Memphis	Scotland
Bruner, Glen Lamer.....	Kansas City	Jackson
Bunch, Roy Lee.....	Lancaster	Schnyler
Burgess, William Henry.....	Mt. Pleasant, Iowa.....	
Bushyhead, Jim Butler.....	Tahlequah, I. T.....	
Carlis, Price	Hallsville	Boone
Carter, Don Carlos.....	Sturgeon	Boone
Chinn, Jas. Henry.....	Platte	Platte
Clalborne, James Robert, Jr.....	St. Louis City.....	
Clark, Boyle Gordon.....	Columbia	Boone
Collier, Clair Thomas	Breckenridge	Caldwell
Coons, Wilbur	Bloomington, Ill.....	
Dale, Fred Hiner.....	Milo	Vernon
Dance, George Nelse.....	Lewiston	Lewis
Depew, Harold	Linden, N. J.....	
Ducker, Walter Scott	Sedalla	Pettis
Edwards, Julius Robinson.....	Centralla	Boone
Edwards, Waldo	Bevier	Macon
Ellison, George Robb.....	Maryville	Nodaway
Eustace, Marlon Howlett.....	Nevada	Vernon
Fisher, Hugh Conniff	Shreveport, La.....	
Franken, William Alwiclous	Norborne	Carroll
Galbraith, Jere Inman	Henderson, Tenn.....	
Greenman, Elias	Kansas City	Jackson
Groom, Oscar Downing.....	Breston, I. T.....	
Gunther, Jacob Joseph.....	Clyde	Nodaway
Hedenberg, Joseph Reeves.....	St. Joseph	Buchanan
Howell, Daniel Voorhees.....	Brookfield	Linn
Jenkins, Joseph Henry.....	Merrimac, Neb.....	
Johnson, Norman Joseph.....	Lone Dell	Franklin
Jones, Edward Seward	Bevier	Macon
Kaune, Quintus Arthur.....	Butler	Bates
Kelsey, Fred	Farmington, Wash.....	
Kimpel, Ben Drew.....	Dermott, Ark.....	
Kincannon, Fred	Granby	Newton
Langsdale, Clifton	Kansas City	Jackson
Law, Benjamin Bowker.....	Glade Hill, Va.....	
Lile, Floyd Winton.....	Gallatin	Davless
Marr, Chester Arthur.....	Goss	Monroe
Meade, James Feurt.....	Gallatin	Davless
Morse, Wallace Milbank.....	Excelsior Springs	Clay
Morse, Benjamin Whitley	Excelsior Springs	Clay
Murray, Charles James.....	Jefferson City	Cole
McCune, Oke	Frankford	Pike
Nichols, Clark	Joplin	Jasper
Park, Chester James.....	La Plata	Macon
Parks, James Allen.....	Clinton	Henry
Pearcy, Claude Otis.....	Thornfield	Ozark
Sears, Edward Nelson.....	Deer Ridge	Lewis
Setsler, Edward Allen.....	Kansas City	Jackson
Shelby, Lewis Bliss.....	Sterling, Kan.....	
Smith, C. Leslie.....	Pueblo, Colo.....	
Swinford, Urban McCauley.....	Cynthiana, Ky.....	
Tatom, Isaac Irvine.....	Geneva, Ala.....	
Taylor, Eben Lavert.....	Ft. Smith, Ark.....	
Taylor, James Arlington.....	Brookfield	Linn
Tennyson, Luther Wesley.....	Belgrade	Washington
Venable, Charles Wynne.....	Gallatin	Davless
Waye, William, Jr.	St. Charles	St. Charles
Weber, Benjamin	New York, N. Y.....	
Wells, William Ernest.....	Maryville	Nodaway
Wood, Ben Artie	Holden	Johnson
Zollinger, John H., Jr.	Otterville	Cooper

Name.	Postoffice.	County.
<i>Special Students.</i>		
Abernathy, Robert Turner.....	Pierce City	Lawrence
Anthony, Robert Lee.....	Columbia	Boone
Bartlett, Jerome Fulliam.....	Muscatine, Iowa.....	
Bedinger, Henry Garrett.....	Anchorage, Ky.....	
Bruce, Leslie Albert.....	Pleasant Hill	Cass
Buchanan, Alexander	Ava	Douglas
Burch, Olive Helen.....	Hopkins	Nodaway
Burns, Leonard Lloyd.....	Ft. Cobb, Okla.....	
Chamberlain, Alonzo Walter.....	Spencer, Iowa	
Clevenger, Joseph Raymond.....	Excelsior Springs	Clay
Cowell, George Glenn.....	Boonville	Cooper
Cutchin, Ernest	St. Louis City.....	
Dew, Samuel Arthur.....	Kansas City	Jackson
Dudley, Minto	Knobnoster	Johnson
Fair, Ellis Hamilton.....	Centerton, Ark.....	
Freeman, Herman Harrison.....	Paris	Monroe
Hacker, Will Lee	New Madrid	New Madrid
Hollingshead, Ralph Earl.....	Joplin	Jasper
Kitchen, Robert Adelbert.....	St. Louis City.....	
Lindsay, George William.....	Senatobia, Miss.....	
Marlowe, George Elbert.....	Norborne	Carroll
Mason, James Henry.....	Long Lane	Dallas
Moore, Hugh Lawson.....	Quincy, Ill.....	
Murphy, Maurice Patrick.....	Chillicothe	Livingston
McDaniel, Lawrence	Savannah	Andrew
Nelson, Earl Fontaine.....	Milan	Sullivan
Ring, Charles Nichols.....	East St. Louis, Ill.....	
Roehrig, Emil	Marthasville	Warren
Ryan, Richland Marlon	Mt. Vernon	Lawrence
Shannon, Easton Adair.....	Vandalla	Audrain
Shelton, Walter	Licking	Texas
Simmons, Thomas Tilden.....	Tarpon Springs, Fla.....	
Stafford, John I.	Columbia	Boone
Steel, Adrian Lee	Ironton	Iron
Steele, Oliver Lee.....	Columbia	Boone
Stenger, John Walter.....	Onasco, Okla.....	
Thomas, Enoch Lee.....	Green City	Sullivan
Thompson, Samuel McAfee.....	Cheyenne, Wyo.....	
Townsend, Will	Bolivar	Polk
Weber, Herbert Gregory.....	Carlyle, Ill.....	
Williams, Robert Walker.....	Wytheville, Va.....	
Wilson, John Benjamin.....	California	Moniteau
Wilson, Floyd Johnson.....	LaBelle	Lewis
Wright, Porter	Chilhowee	Johnson
Young, Randall Boyer.....	Red Oak, Iowa.....	

Medical Department.

Name.	Postoffice.	County.
<i>Fourth Year Class.</i>		
Brunner, Ethan Edward.....	Krumsville, Pa.....	
Campbell, Albert James.....	Clinton	Henry
Clark, Chester Harlan.....	Columbia	Boone
Colley, Elijah Augustus.....	Plattsburg	Clinton
Cowgill, Eugene Park.....	Oak Valley, Kan.....	

County.
Boone Pulaski Green —11
Cedar Lewis Dade Boone —11
Pettie Boone Saline Macon Franklin Boone Green Boone Letcher Pettie St. Clair Verano Saline Boone Verano May —11
Jackson Harrison Stoddard Pettie Boone Caldwell Saline Cole Caldwell St. Francis

Name.	Postoffice.	County.
Hume, Leslie Walker.....	Armstrong	Howard
James, Luther Scott.....	Marshall	Saline
Kelley, Arthur Henry.....	St. Joseph	Buchanan
Kuns, Frank Oliver.....	Aspen, Colo.....	
Lhamon, Ruskin	Columbia	Boone
Lyter, Curtis	Berry, Ky.....	
Matkins, James Marion	Morton's Store, N. O.	
Monroe, Lee Elsworth.....	Eureka	St. Louis
Moody, Mrs. Anna Pearson.....	Columbia	Boone
Moody, Levi, Jr.....	Columbia	Boone
McNatt, Oscar Right.....	McNatt	McDonald
Orr, Thomas Grover.....	Carrollton	Carroll
Palmer, Clarence Allen.....	Vinton, Iowa.....	
Pernoud, Flavian Gentry.....	Desoto	Jefferson
Schooling, Lacy Parks.....	Moberly	Randolph
Simeral, Fred Ernest.....	Brooklyn, Iowa.....	
Simison, Charles Wade.....	Clinton	Henry
Sneed, Arthur Allen.....	Centralla	Boone
Stevenson, Clarence Logan.....	Savannah	Andrew
Ware, Sterling Ansel.....	Ashland, N. O.....	
		—34
<i>Special Students.</i>		
Bates, Edith Chalenor	Columbia	Boone
George, Charles Elmore.....	Brumley	Miller
Moore, Hugh Lawson.....	Quincy, Ill.....	
		—3

College of Agriculture and Mechanic Arts.

A. School of Agriculture.

Name.	Postoffice.	County.
<i>Senior Class.</i>		
Bradley, Harry Everett.....	St. Louis City.....	
Gray, Daniel Thomas.....	Nevada	Vernon
Harvey, William Thomas.....	Prairie Hill	Chariton
Moree, Edward Emanuel.....	Baker	St. Clair
Thleman, Louis William.....	Aullville	Lafayette
		—5
<i>Junior Class.</i>		
Allen, Archibald Murray.....	Columbia	Boone
Cline, Lewis Edgar.....	Trenton	Grundy
Cochel, Wilber Andrew.....	Columbia	Boone
Favor, Earnest Howard.....	Springfield	Green
Greene, Homer Cooper	Ireland, Ind.....	
Hechler, Charles Henry.....	Dalton	Chariton
Hewitt, Joseph Lee.....	Mt. Washington.....	Jackson
Lauffert, Walter Fred.....	St. Louis City.....	
Price, James Newton.....	Trenton	Grundy
Schlie, Henry John.....	Santa Fe, Arg. Rep.....	
Tarter, Laban Moore.....	Trenton	Grundy
Vera, Joseph Mary.....	Santa Fe, Arg. Rep.....	
Welch, Howard	Columbia	Boone
		—13
<i>Sophomore Class.</i>		
Brunjes, Albert Peter.....	Cole Camp	Benton
Caldwell, Edwin Fletcher.....	Burlington Junction.....	Nodaway

Name.	Postoffice.	County.
Chandler, Wm. Henry.....	Butler	Bates
Childers, Lucius Franklin.....	McFall	Gentry
Ensign, William Guy.....	Cameron	Clinton
Foulds, James Cleveland.....	Higginsville	Lafayette
Hill, John Benjamin.....	Columbia	Boone
Jackson, Lena Rebecca.....	Columbia	Boone
McCombs, Melvorne Jackson.....	Dallas, <i>Tex</i>	
Rouse, Birdie Laforce.....	Brown Station	Boone
Starr, Chester Gibbs.....	Centralia	Boone
Stewart, Charles Theodore.....	Monroe, <i>La</i>	

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Freshman Class.

Cockefair, Edgar Augustus.....	Unionville	Putnam
Dandy, Victor	Trenton	Grundy
Estill, Richard Gentry.....	Sedalia	Pettis
Hirschi, Abraham Garfield	Rockville	Bates
Ikenberry, Riley Thomas	Leeton	Johnson
Johnston, Emily Keating	St. Louis City.....	
Kelly, Garnette Duncan.....	Browns Station	Boone
King, Richard, Jr.....	Driscoll, <i>Tex</i>	
Mackey, Alonzo White.....	Palmyra	Marion
Mayberry, Herman Hazelton.....	Lockwood	Dade
Moss, Joseph Samuel.....	Columbia	Boone
McGaugh, William Thomas.....	Richmond	Ray
Read, John William.....	Columbia	Boone
Reed, Ollie Ezekiel.....	Moberly	Randolph
Salem, George Joseph.....	Mehalla-Kobra, <i>Egypt</i>	
Scrutchfield, Lola Lee.....	Clarence	Shelby
Stuart, Lyman Howard.....	Aurora	Lawrence
Thleman, Daniel Benjamin.....	Aullville	Lafayette
Tillman, Benjamin William.....	Loose Creek	Osage
Wayman, Harry Selwyn.....	Kansas City	Jackson
Woods, Lee Aker.....	Smithville	Clay
Woodward, Tom Elwyn.....	Columbia	Boone
Wright, James Kelly.....	Columbia	Boone
Young, Harry Dashiell.....	Kirkwood	St. Louis

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Special Students.

Basye, Alfred Ellismond.....	Kansas City	Jackson
Crumbaugh, Lucy Cornelia.....	Columbia	Boone
Davenport, Laura Grace.....	Columbia	Boone
Dow, Simon David.....	Georgetown	Pettis
Dunaway, Whig Frank.....	Caplinger Mills	Cedar
Eves, Bertha	Monarch, <i>Ark</i>	
Gibson, Benjamin James.....	St. Louis City.....	
Greensfelder, Moses Bernard.....	Clayton	St. Louis
Hartman, Fannie Taylor.....	Ft. Crook, <i>Neb</i>	
Huenefeld, Hugo William.....	Holstein	Warren
Hoag, Mrs. Wilbur Elery.....	Columbia	Boone
Kelso, Floyd Lee.....	Willard	Greene
Lanham, William Bradford.....	Sapp	Boone
Mullins, Ben Harrison.....	Linneus	Linn
McDaniel, John Samuel	Houstonia	Pettis
McEntee, Thomas Bird	Webb City	Jasper
Parker, Edith	Columbia	Boone
Rosenfelder, William Fred.....	Columbia	Boone
Rubart, Elizabeth	Junction City, <i>Kas</i>	
Vaughn, Mrs. Earnest Van Court...	Columbia	Boone

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Dairying 11

Contd.

Perry
Harry

Henry

Vernon
Marion

Callaway
Lafayette
Franklin
Franklin
Marion
Linn

Bates
Hocutt
Randolph

Denton

Davis

Henry
Hocutt

Texas

Doane

Callaway
Hocutt

Chapman
DeKalb

Owen

Nodaway
Nodaway

Charlton

Owen

Hocutt

Linn

Scott

Henry

Vernon

DeKalb

Harmon

Lafayette

Hocutt

Marion

Mayfield

Hocutt

Marion

Mr. Charles

Marion

Linn

Hocutt

County.

Washington
Lafayette
Adair
Henry
Johnson
Johnson
Henry
Boone
—83

County.

Buchanan
Boone
Montgomery
Clay
Boone
Marion
Jasper
Polk
Harrison
Gentry
Jasper
Holt
Boone
Boone
Jackson
Osborne
Olin
Marion
Marion
Randolph
Franklin
Jasper
Monroe
Boone
Buchanan
Boone
Adair
Grundy
—85

Barren
Lafayette

Name.		Postoffice.	County.
Brack, Elbert Otto.....	E. E.	Little Rock, Ark.....	
Buckham, John Edwin	E. E.	Rockport	Atchison
Cargill, Raymond Luther.....	E. E.	St. Joseph	Buchanan
Cavanaugh, Daniel Joseph.....	C. E.	St. Charles	St. Charles
Clifton, Charles Minton.....	E. E.	Brookfield	Linn
Coe, Denzil Worrell.....	C. E.	San Francisco, Cal.....	
Davis, John Piper.....	C. E.	Windsor	Henry
Denny, Earl	M. E.	Kearney	Clay
Diehl, Harry Everett.....	E. E.	Clinton	Henry
Dobson, Gilbert	C. E.	Philadelphia, Pa.....	
Dudley, Wray	E. E.	Troy	Lincoln
Duncan, Dorsey Berry.....	C. E.	Columbia	Boone
Edy, John North.....	C. E.	DeSoto	Jefferson
Ellis, John Richard.....	C. E.	Pilot Grove	Cooper
Fairley, Ohmer	C. E.	Princeton	Mercer
Faris, Clyde Homer.....	M. E.	Carrollton	Carroll
Haggard, Homer Huston.....	C. E.	Mexico	Audrain
Hall, Delmer Kenneth.....	C. E.	Harrisonville	Cass
Hann, George Washington.....	C. E.	Columbia	Boone
Harris, George Frederick	E. E.	Jameson	Davies
Harrison, Nelson Burr.....	M. E.	Bethany	Harrison
Hemphill, Joseph Arthur.....	C. E.	Elsberry	Lincoln
Huddle, David Franklin.....	E. E.	Pineville, La.....	
Huntsman, Frank C.....	C. E.	Macon	Macon
Kidd, James Franklin.....	E. E.	Sedalia	Pettis
King, Robert Charles.....	E. E.	Hanoverville, Pa.....	
Kreutz, Louis Bertram.....	C. E.	Columbia	Boone
Lack, Charles Frederick.....	C. E.	Mobile, Ala.....	
Laird, Norman Ketron.....	E. E.	Vandalla	Audrain
Liepsner, Frank Wright.....	Ch. E.	Kansas City	Jackson
Macfarlane, Guy O'Rear.....	M. E.	Mexico	Audrain
Maddox, Edward Morton.....	E. E.	New London	Ralls
Malsbury, Omer Elmer.....	C. E.	Joplin	Jasper
Martin, Charles W.	C. E.	Troy	Lincoln
Martin, Charles Knox.....	E. E.	Doniphan	Ripley
Maupin, Edgar Staples.....	C. E.	Canton	Lewis
Penter, Eli Everett.....	E. E.	Ashland	Boone
Richards, Dean Willard.....	E. E.	Buckner	Jackson
Robertson, Charles Emery.....	E. E.	Chicago, Ill.....	
Ross, Lewis James.....	C. E.	Richmond	Ray
Rubio, Oswaldo	M. E.	Puerto Principe, Cuba.....	
Schooler, William Allen.....	M. E.	Carthage	Jasper
Sea, LeRol Hiram.....	C. E.	Independence	Jackson
Smith, Orville Adniroum.....	M. E.	Vandalla	Audrain
Thompson, James Loyd.....	C. E.	Roswell, New Mexico.....	
Walborn, Ira Guy	E. E.	Orwigsburg, Pa.....	
Welch, James Reid.....	C. E.	Elsberry	Lincoln
Whaley, George Clifton.....	E. E.	Canon City, Colo.....	
Whitlow, Joseph Andrew.....	E. E.	Clinton	Henry
Winter, William Neal.....	E. E.	Greenville, Miss.....	

Sophomore Class.

Alexander, Philip Thomas	C. E.	Farmington	St. Francois
Alt, Charles Franklin.....	M. E.	Norborne	Carroll
Baender Fred George.....	M. E.	Moberly	Randolph
Bagby, Harry Edward.....	E. E.	Vinita, I. T.....	
Baldwin, Robert Lee.....	E. E.	Dresden	Pettis
Beattie, Lilburn Carter.....	C. E.	Higginsville	Lafayette
Blanks, Don Hewitt.....	C. E.	Moberly	Randolph
Brundige, Daniel Lee.....	M. E.	Adrian	Bates
Coleman, Lindley Gilmore....	E. E.	Monarch	St. Louis
Collins, Enoch Arthur.....	E. E.	Columbia	Boone
Crane, Wells	C. E.	Columbia	Boone

Name.		Postoffice.	County.
Crichton, Leslie Nathaniel...	E. E.	Independence	Jackson
Dinkle, Ernest	C. E.	Hilldale	Howard
Driggs, Edwin Leroy.....	C. E.	Mound Valley, Kas.....	
Durant, David Richardson....	C. E.	Bromley, Ala.....	
Emmert, Roy West.....	C. E.	St. Joseph	Buchanan
Estes, Robert James.....	M. E.	Stillwell, I. T.....	
Fessenden, Charles Horace...	M. E.	St. Louis City.....	
Floyd, William Harris III, ..	E. E.	St. Joseph	Buchanan
Gilmor, Robert Edward.....	C. E.	Vandalla	Audrain
Hain, Veit Aull.....	E. E.	Boonville	Cooper
Heidel, Benjamin F.....	C. E.	Warrenton	Warren
Hoff, Carl Porter.....	C. E.	Stockton	Cedar
Jacoby, Fred Ruben.....	C. E.	O'Fallon	St. Charles
Kirkham, William Harry.....	C. E.	Orrick	Ray
Kizer, Raymond	E. E.	Kansas City	Jackson
Lake, Joberry	C. E.	Columbia	Boone
Land, William Henry, Jr....	E. E.	Gilliam	Saline
Lieber, Roman Arthur Eugene	E. E.	Boonville	Cooper
Lockwood, Frank Leroy	C. E.	Columbia	Boone
Martin, Fred William.....	E. E.	Moberly	Randolph
Monlux, Marshall H.....	M. E.	Metz	Vernon
Moorehouse, Ernest Campbell.	E. E.	Hamilton	Caldwell
Nash, Franklin Marion.....	E. E.	Clinton	Henry
Oehler, Edward Henry.....	Ch. E.	East St. Louis, Ill.....	
Querbach, Earl	C. E.	St. Louis City.....	
Redman, James Elden.....	E. E.	Marshall	Saline
Richardson, John Eaton.....	E. E.	Kansas City	Jackson
Riesbol, Fred Peterson.....	C. E.	Red Bird	Gasconade
Romberg, Edward Robert....	C. E.	Hannibal	Marion
Rosebush, Earl Alonso.....	E. E.	Erie, Kas.....	
Russell, Clifford Norman....	E. E.	Coffeyton	Crawford
Schilling, Oscar Arnold.....	E. E.	St. Louis City.....	
Schrenk, Louis John.....	M. E.	Brunswick	Chariton
Sedwick, Harry Frazer.....	E. E.	Mt. Vernon	Lawrence
Seltz, William Kerlin.....	C. E.	Kirksville	Adair
Smith, Homer Kephart.....	E. E.	Maitland	Holt
Smith, Lynn Wallace.....	E. E.	Franklin	Howard
Smith, William Forrest.....	C. E.	Essex	Stoddard
Spaht, Albert William.....	E. E.	Pattonsburg	Davless
Steiner, Alexander	E. E.	St. Louis City.....	
Tapper, Charles Albert.....	M. E.	Elgin, Ill.....	
Twelves, Charles Murray....	E. E.	Provo, Utah.....	
Vandiver, James Louis.....	C. E.	Columbia	Boone
Walker, Ben Shore.....	C. E.	Columbia	Boone
Washer, Eb.	E. E.	Kansas City	Jackson
Wells, Ross Clark.....	C. E.	Kansas City	Jackson
White, Ivan Forrest.....	C. E.	Harrisonville	Cass
Whitehead, Arthur Stanley...	C. E.	St. Joseph	Buchanan
Willi, Otto Barnett.....	M. E.	Montgomery City	Montgomery
Woods, John Marcus, Jr....	E. E.	O'Fallon	St. Charles

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Freshman Class.

Ardinger, Horace Chester....	C. E.	Lexington	Lafayette
Bashore, Harry	C. E.	Palmyra	Marion
Belcher, Mason Wilson.....	C. E.	Columbia	Boone
Benson, William Randolph, Jr	C. E.	Woodlawn	Monroe
Bowman, Ralph Boyd.....	E. E.	Sumner, Ill.....	
Branham, Robert Todd.....	M. E.	Columbia	Boone
Briggs, Clark Arthur.....	E. E.	Joplin	Jasper
Briggs, Frederick Edmond...	M. E.	Joplin	Jasper
Brooking, Joseph Hugh.....	C. E.	LaBelle	Lewis
Brown, Marland Emery	C. E.	St. Louis City.....	
Bryant, John Wesley, Jr....	E. E.	Marshall	Saline

Name.		Postoffice.	County.
Burger, Rudolph Eugene....	E. E.	Texarkana, Texas.....	
Caldwell, Marcus White....	C. E.	Shelbina	Shelby
Campbell, Ona Harrison....	C. E.	Dunnegan	Polk
Carr, James	E. E.	Louisiana	Pike
Chester, Walter	C. E.	Kansas City	Jackson
Christy, William Tandy, Jr..	C. E.	Excelsior Springs	Clay
Cook, Charles Read.....	E. E.	Trenton	Grundy
Crawford, Harry Huston....	E. E.	New Madrid	New Madrid
Davidson, William Andrew....	C. E.	Oregon	Holt
Davidson, William Clarence..	E. E.	Grant City	Worth
Dickson, Thomas Marvin....	E. E.	Wakenda	Carroll
Downing, Richard Collins....	E. E.	Higginsville	Lafayette
East, William Huston.....	E. E.	Brookfield	Linn
Evers, August George.....	M. E.	St. Louis City.....	
Fisher, Hugh Conniff	E. E.	Shreveport, La.....	
Folk, Frank Edson.....	C. E.	Kansas City	Jackson
Foster, Morris Mack.....	C. E.	Marshfield	Webster
Freeman, Floyd Conger.....	C. E.	Chaffee, N. Y.....	
Glenn, Harry A.....	E. E.	Sedalia	Pettis
Gordon, Robert Davis.....	M. E.	St. Joseph	Buchanan
Hardy, Arthur Raymond....	C. E.	Medfield, Mass.....	
Hart, Vernon Adel.....	C. E.	Chillicothe	Livingston
Hatfield, Signa Leonidas....	E. E.	Columbia	Boone
Heckler, Fred George.....	M. E.	Dalton	Charlton
Hesch, Henry Charles.....	E. E.	St. Louis City.....	
Hodge, Duncan Locke.....	M. E.	Brunswick	Charlton
Hoffmann, Hopson Mountjoy..	M. E.	Maplewood	St. Louis
Hogan, John Andrew.....	C. E.	Moberly	Randolph
Hunker, William Lamott....	E. E.	Roanoke	Howard
Imbert, Louis Ettienne....	E. E.	St. Joseph	Buchanan
Jarvis, Reynolds Fletcher....	M. E.	Columbia	Boone
Jeffers, George Ernest.....	E. E.	Kansas City	Jackson
Johnston, George Perry.....	C. E.	Monroe City	Monroe
Jordin, Clair	E. E.	Gallatin	Davies
Kautz, Albert Bruce.....	E. E.	Hamilton	Caldwell
Keene, William Archibald....	C. E.	Columbia	Boone
Kennedy, Terrance Orlando...	E. E.	Poplar Bluff	Butler
Koenig, Charles Albert.....	M. E.	Huntsville	Randolph
Krog, Fred Henry.....	E. E.	Washington	Franklin
Labsap, Alfred Harry.....	C. E.	Hannibal	Marion
LaRue, Harry	C. E.	Marshall	Saline
LaRue, Hugh Buckley.....	E. E.	Marshall	Saline
Lindquist, Oscar Franklin....	C. E.	Mascot	Greene
Lockwood, Charles Clyde....	E. E.	Columbia	Boone
Logan, Walter Cyrus.....	C. E.	Hannibal	Marion
Maddox, George Finley.....	E. E.	New London	Rails
Marsh, Harold	C. E.	Tyler, Texas.....	
Mason, Ralph Hedges.....	C. E.	Mexico	Audrain
Maupin, Oval Asbury.....	E. E.	Canton	Lewis
Miller, John Brent.....	C. E.	Shelbyville	Shelby
Moss, Perry	E. E.	Columbia	Boone
Murphy, Maurice Patrick....	E. E.	Chillicothe	Livingston
Murta, John Charles.....	Ch. E.	Ft. Smith, Ark.....	
Myers, Malcolm Hulbert....	M. E.	Newton Center, Mass.....	
McClaran, Harry Douglas....	M. E.	Princeton	Mercer
McGaugh, William Thomas..	C. E.	Richmond	Ray
McKenzie, Andrew Jackson...	C. E.	Centralla	Boone
McNatt, Homer Elkanah....	E. E.	Aurora	Lawrence
Nemnich, Herman Julius....	E. E.	Walnut Ridge, Ark.....	
Nowell, William Benjamin...	C. E.	Columbia	Boone
O'Bannon, Walter Allen....	C. E.	La Mont	Pettis
Palne, George Maxwell.....	E. E.	Louisiana	Pike
Parker, Dwight Budd.....	C. E.	St. Louis City.....	
Pearce, Tom Russell.....	E. E.	Aurora	Lawrence
Perry, John Edmond.....	E. E.	Columbia	Boone

County.

Scotland
Randolph
St. Clair
Cass
Jasper
Jasper
Ozark
Audrain
Buchanan
Carroll
Marion

Jackson
Jackson

Out
Randolph
Howard
Boone
Randolph
Marion

Jackson

Boone
Boone
Monroe
Jasper

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Pottaw
Boone

Pottaw

Knott
Devine

Dade
Greene

Newton
Cass

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County.

Wheel
Coorman's River, Va.
St. Louis, Mo.
Lebanon, Mo.
Marysville, Mo.
Barbours, W. I.
Centerville, Iowa
Dallas, Texas
Irwin, Pa.

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Name.	Postoffice.	County.
<i>Seniors.</i>		
Ambler, John Owen	St. Louis, Missouri	
Black, James Kennedy	Clayton, Missouri	
Bland, George Vest	Lebanon, Missouri	
Brown, Joseph Jarvis Jr.	Troy, Illinois	
Carnahan, Thomas Samuel	Ogden, Utah	
Conrads, Ralph Augustus	Trenton, Missouri	
Cummins, Robert Patrick	St. Louis, Missouri	
Delano, Lewis Albert	Ironton, Missouri	
Damon, Duffield Duncan	Kansas City, Missouri	
Foster, Leo Joseph	St. Louis, Missouri	
Gregory, James Albert	Joplin, Missouri	
Grine, Henry Adam	St. Louis, Missouri	
Hoewel, William Alexander	St. Louis, Missouri	
Hummel, Charles Mahlon	Humbolt, Nebraska	
Keenan, John Thomas	Lonsdale, Rhode Island	
King, Charles LeClair	Reynoldsville, Pennsylvania	
Lohman, Harry William	Brooklyn, New York	
McCarthy, John Henry	St. Louis, Missouri	
Minor, Cyrus Edward	Springfield, Missouri	
Morgan, Glen Bleckley	Indianapolis, Indiana	
Perrier, Alphonse Sylvan	Gillett, Colorado	
Price, Evan Edmund	Canon City, Colorado	
Price, John Morgan	Canon City, Colorado	
Prugh, Julian Insko	Sioux City, Iowa	
Quinn, Matthew Vincent	Pen Yan, N. Y.	
Rice, John Turner	Omaha, Nebraska	
Schroeder, John Severin	Peabody, Kansas	
Trask, Samuel Mathes	Memphis, Tennessee	
Tweed, Walter James	Houston, Missouri	
Woods, Clarence	Silver City, Idaho	
Wrisberg, Charles George	St. Louis, Missouri	
<i>Juniors.</i>		
Allee, Orsino Paul	Kirkwood, Missouri	
Armstrong, Robert Augustus	Denver, Colorado	
Baker, Morris	Philadelphia, Pennsylvania	
Burgher, Mark Bernard	Light, Missouri	
Caples, James Watts	Glasgow, Missouri	
Clary, John Henry	Maryville, Missouri	
Chamberlain, Harry Carleton	St. Louis, Missouri	
Christopher, James Knight	Kansas City, Missouri	
Cowperthwaite, Thomas	Coal Creek, Colorado	
Emry, Leslie Burson	Carthage, Missouri	
Gardiner, William Alexander	Fullerton, California	
Gray, Harry Lilburn	Bowling Green, Missouri	
Graves, John	Kansas City, Missouri	
Green, Cecil Theodore	Sacramento, California	
Grether, Walter Scott	Greenfield, Missouri	
Griffith, William Thomas	St. Louis, Missouri	
Guntley, Edward Anthony	St. Louis, Missouri	
Hand, Horace Alonzo	Stuttgart, Arkansas	
Harris, George William	Yankton, South Dakota	
Heck, Elmer Cooper	Lathrop, Missouri	
Hoffman, Ray Eugene	Buffalo, New York	
Hunt, Lamar Horatio	Chicago, Illinois	
Hurtgen, John	Hillsboro, Missouri	
Illinski, Alexis Xavier	Nashville, Tennessee	
Earle, James Jamison	Rolla, Missouri	
Knight, Stewart Clark	Kansas City, Missouri	
Kunz, David	Mountain City, Nevada	
Lalzure, Clyde McKeever	Fargo, North Dakota	
Lehman, John Ludwig Gustav	Rolla, Missouri	
Lintecum, Charles Lafayette	Norfolk, Nebraska	

Name.	Postoffice.	County.
Manwaring, Edgar George Ross.....	Ann Arbor, Michigan	
Mapes, Harold Thomas	Philadelphia, Pennsylvania	
Moore, Stanley Ralston	Cherryvale, Kansas	
Nesbitt, William Corsey	Rolla, Missouri	
Northrup, Gilbert Wright	Ashton, Illinois	
Poole, Frank Bishop	Rolla, Missouri	
Reeve, Tracy	Denver, Colorado	
Rucker, Ray Hamilton	Rolla, Missouri	
Russell, Robert William	Cameron, Missouri	
Sheldon, Wilbur Ellhu	Yavapai, Arizona	
Simpson, Maurice Edward	Kansas City, Missouri	
Steinmesch, Jesse Herman	Normandy, Missouri	
Smith, Charles Dosh	St. Louis, Missouri	
Southgate, John McKnight.....	Rolla, Missouri	
Thomas, Alfred Augustus	Marionville, Missouri	
Webb, Carroll Dean	Sioux City, Iowa	
Wells, Frank Oliver	Prescott, Arizona	
Wilder, Michael Alonzo	Trinidad, Colorado	
Willfey, Clifford Redman	Maryville, Missouri	
Wyman, William Charles	Ottumwa, Iowa	

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Sophomores.

Andrews, Sanford William.....	Arcadia, Missouri	
Armstrong, Richard Edward	Howell, Michigan	
Barnard, Dale Coleman	Kansas City, Missouri	
Blackman, George Horton	St. Louis, Missouri	
Blatchley, William Henry	Fort Scott, Kansas	
Benedict, Ralph Robert	Kansas City, Missouri	
Clark, Oliver Hunter	Cleveland, Ohio	
Cook, Paul Richard	Rolla, Missouri	
Evans, David Chaplin	Hiawatha, Kansas	
Followill, Dexter Benjamin	Rolla, Missouri	
Hatch, William Peter	Kansas City, Missouri	
Hartzell, Henry (H)	Cape Girardeau, Missouri	
Harper, Frank William	Dallas, Texas	
Hazen, Clyde Frederick	Denver, Colorado	
Horner, Preston King	St. Louis, Missouri	
Isaacson, Arthur Fraiser	Kansas City, Missouri	
Ladd, Howard William	Ottumwa, Iowa	
Landreth, Charles Guy	Neosho, Missouri	
Livingston, Frank Craig Haskell..	Elk Prairie, Missouri	
McCard, Fred John.....	Rolla, Missouri	
McCrae, Charles Edward	Rolla, Missouri	
McMillen, Walter White	Iola, Kansas	
McSpadden, Clement Mayes	Chelsea, Indian Territory	
Morgan, John Henry	Rolla, Missouri	
Nordyke, Rex	Bethany, Missouri	
Parker, Ralph Lyon	St. Louis, Missouri	
Pomeroy, Charles Hart	Kansas City, Missouri	
Powell, Francis Bowman	Rolla, Missouri	
Samuel, Thomas Duncan	Kansas City, Missouri	
Shanks, John Dozler	St. Louis, Missouri	
Soest, Herbert Hugo	Rolla, Missouri	
Stevens, John Vivian	Clayton, Missouri	
Villareal, Francis	Monclova, Mexico	
Willson, Morris	Carbondale, Illinois	
Zertuche, Francisco	Coahuila, Mexico	

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Freshmen.

Abbott, Wilmer Isaac	Bowling Green, Missouri	
Baker, Arnold George	St. Louis, Missouri	
Baker, Charles Cameron	Vinton, Iowa	
Barton, Robert Arthur	Delta, Colorado	
Bell, William Keeling	Pierce City, Missouri	
Bland, Joseph Relfe	St. Louis, Missouri	
Blight, Richard Paul	Denver, Colorado	

English,
History,
Training,
Longy.

County.

Adair
Monroe
Cedar
Jackson
Hay
Boone
Boone
St. Francis
Andrew

Monroe
Clay
Clay
Oscar
Lafayette

Boone
Boone
Boone
Cole
Andrew
Carroll
Boone
Boone
Boone
Carroll
Pettis

Grundy
Boone

Lincoln
Benton
Cam
Pike
Franklin
Andrew
Boone
Henry
Marion
Texas
Gentry
Randolph
Greene
Shelby
Jackson
Boone

Washington
Boone
Upton
Putnam
Boone

Name.	Studies.	Postoffice.	County.
Corder, Lotta Frances.....	Gr., L.	Corder	Lafayette
Cosby, Byron	P.	Butler	Bates
Covington, Linnie	D., H.	Shamrock	Callaway
Craig, James Herman.....	D., L.	Cyrene	Pike
Cross, Annie Helen.....	D.	Mexico	Audrain
Crouch, Clarence Clinton..	G., B., C.	Columbia	Boone
Crumbaugh, Lucy Cornelia..	D., M-T.	Columbia	Boone
Curtis, Helen	Fr., D.	Kansas City	Jackson
Dale, Fred Hiner.....	E., H.	Nevada	Vernon
Dalton, Zetta.....	D., M-T.	Malden	Dunklin
Davis, Estill	E., M-T.	Holliday	Monroe
Dean, Finis	L.	Eldorado Springs	Cedar
DeBolt, Coralie	E.	St. Louis City.	
Deneke, Samuel Fred.....	L., G.	Houck	Cape Girardeau
Diggs, Nelle	M-T., C.	Sheldon	Vernon
Dimmitt, Philip Vaughn.....	C.	Columbia	Boone
Dimmitt, Roy	M-T.	Shelbyville	Shelby
Dix, Mary Blanche D.....	P., C.	Jefferson City	Cole
Dralle, Loretta Della	D.	Canton	Lewis
Dunaway, Whig Frank.....	B., C.	Caplinger Mills	Cedar
Dunaway, Jane English.....	Fr.	Caplinger Mills	Cedar
Dungan, Edith Lucile	L.	Oregon	Holt
Edwards, Eliza Russell	M-T.	Columbia	Boone
Elliott, Ione	P.	Carthage	Jasper
Elston, Bertha	M.	Kansas City	Jackson
Ely, Pearl.....	E., M-T.	Monroe City	Monroe
Ensign, Bertha Leona	Gr.	Cameron	Clinton
Evans, Ernest Roper ..	P., M., H., E.	Armstrong	Howard
Ewington, Alfred	L., Gr.	St. Louis City.....	
Faller, Alice	M., L.	Indian Grove	Chariton
Felts, Patsy	L.	Liberty	Clay
Ferguson, Mrs. Alex McG.....	E.	Austin, Texas	
Fewsmith, Hettie Joy.....	D., M-T.	Columbia	Boone
Fisher, Mary McFarlane.....	D.	Columbia	Boone
Fitch, Mary	E., B.	Columbia	Boone
Fitch, Ruby	E., B., M-T.	Columbia	Boone
Floyd, Monroe Al.	Fr., L.	Blackburn	Saline
Floyd, Myrtle Gladys..	Fr., L., M-T.	Holden	Johnson
Forbis, Jennie Houck.....	H., P.	Fayette	Howard
Fox, Esther	H., Ag.	St. Louis City.....	
Franken, William Alviricious.	E., M.	Norborne	Carroll
Frazier, Leland	E., B.	Clifton Hill.....	Randolph
Frieze, Everett	H.	Bona	Dade
Gates, Mary Elizabeth.....	E., L.	California	Moniteau
Gatson, Ann Elizabeth.....	D., H.	Vandalla	Audrain
Ginnings, Robt. Meade.....	M., P.	Kirksville	Adair
Glasse, Gertrude Geraldine..	G., H.	Kingsville	Johnson
Goodrich, Perry Leigh.....	E., G.	Calhoun	Henry
Grant, Willis Martin.....	M., E.	Ridgeway	Harrison
Gray, Sallie	Ped., H.	Windsor	Henry
Gray, Daniel Thomas.....	E., H.	Nevada	Vernon
Green, James Lock.....	E., L.	Salisbury	Chariton
Green, Talltha Jennie	Gr.	Lathrop	Clinton
Greene, Charles Arthur.....	M-T.	Triplett	Chariton
Griffith, Florence	D., H.	Columbia	Boone
Gruner, Caroline Frances....	H., G.	St. Louis City.....	
Gulsinger, Dora May....	Ped., M-T.	Lone Tree	Cass
Gwinn, Richard Luther....	L., E., P.	Slater	Saline
Hackler, John Monroe....	E., G., M.	Adrian	Bates
Hall, Leonidas Jordan.....	E., Ped.	Sturgeon	Boone
Hall, Lena Maude	D.	Columbia	Boone
Harper, Frank	H., P.	Cainsville	Harrison
Harrah, Jennie	E., H.	Jamesport	Davies
Harrison, John Scott	C.	Bethany	Harrison
Harshe, Robert Bartholow..	D., M-T.	Columbia	Boone

County.

Jefferson
Vernon
Montana
Boone
Charlton
Cole
Dade
Jackson
Kear
Adair
Adair

St. Louis
Franklin
Mercer
Henry
Linn
Gentry
Grundy
Montgomery
Dartmouth
Clark
Greene
Madaway
Boone
Boone
Boone

Morgan
Davies
Boone

Franklin
Bates
Boone

Platte
Marion

Henry
Cooper
Boone
Randolph

St. Louis
St. Louis
Gentry
Grundy
Boone

St. Louis
Grundy
Buchanan

Mercer
Jasper

Jasper
Audrain

St. Louis
Pettie

County.

Gentry
 Randolph
 Scotland
 Bates
 Jackson
 Jackson
 Macon

 Henry
 Polk
 St. Louis
 DeKalb
 Boone
 F.
 Jasper
 Atchison
 Stoddard

 Pettie
 Saline
 Audrain
 Laclede
 Boone
 Boone
 O.
 Audrain
 Gasconade
 Monroe
 Pettie
 Jefferson
 A.
 Boone
 Boone
 Macon
 Clay
 Pike

 Omark
 Jasper

 Boone
 Boone
 Boone
 Monroe
 Monroe
 Howard
 Boone
 Grundy

 Pike
 Boone
 Randolph
 Randolph

 Clark
 Mercer
 Carroll
 Johnson
 Macon
 Lewis
 Randolph
 Gasconade

County.

Pemiscot
Boone
Pike
Audrain
Jasper
Jasper

Lafayette
St. Charles
Randolph
Jackson
Johnson

Jefferson

Boone
Adair
Shelby
Woodward
Gentry
Boone
St. Francis
Jackson
Worth
Boone
Boone
Boone

Lincoln
Devine

Lincoln
Holtzman
Henry
Boone
Saline
Marion
Boone
Buchanan
Jackson
DeKalb
Monroe
Cape Girardeau
Macon

Lincoln
Boone
Lincoln
Lincoln

Cass
Dart
Boone

Johnson
St. Charles
Boone
Cooper
Shelby
Boone
Holt

Calculus
—110

Buchanan
 Buchanan
 Buchanan
 Modaway
 Modaway
 Buchanan

List of Students.

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Name.	Studies.	Postoffice.	County.
Mitchel, Frank N.	E.	Los Angeles, Cal.	
McCallon, Frank C.	E., M., L.	Rosendale	Andrew
McCarthy, Miss	*		
McCormick, Elizabeth Jane..	M., E.	Hopkins	Nodaway
McLintock, Clarissa Margaret..	M., E.	Atchison, Kas.	
Nesbitt, Nellie	L., E.	St. Joseph	Buchanan
Neville, Arthur E.	P., E.	Melbourne	Harrison
Patterson, Nettle	M., P.	St. Joseph	Buchanan
Pirkey, Russell J.	H., E.	St. Joseph	Buchanan
Pirkey, Marion Ely	H., E.	St. Joseph	Buchanan
Pirkey, Everett L.	H., E.	St. Joseph	Buchanan
Polk, Lillie Bell	M., P.	St. Joseph	Buchanan
Rader, Clara	E., H.	St. Joseph	Buchanan
Ransom, Mable	E., H.	St. Joseph	Buchanan
Rawlings, Mabel E.	E.	St. Joseph	Buchanan
Roberts, Maggie Ann	E., M.	DeKalb	Buchanan
Rusco, Bessie D.	E., M.	St. Joseph	Buchanan
St. John, Effie	E., M.	Bigelow	Holt
Sapp, Ella Josephine	E., M.	St. Joseph	Buchanan
Sawyer, Mabel Eldora	E., H.	St. Joseph	Buchanan
Schmidt, Hermann G. F. ...	L., M.	St. Joseph	Buchanan
Simms, John H.	E., P.	Pleasant Green	Cooper
Smith, James Ella	E., H.	St. Joseph	Buchanan
Starrett, Lena M.	M.	St. Joseph	Buchanan
Stewart, Mabel May	L.	St. Joseph	Buchanan
Sutherland, Jessie C.	E., M.	Savannah	Andrew
Textor, Matilda	H., E.	St. Joseph	Buchanan
Thrasher, Fannie H.	M., H.	St. Joseph	Buchanan
Traynor, Nellie B.	E., H.	St. Joseph	Buchanan
Turner, Elizabeth V.	E., M.	St. Joseph	Buchanan
Turner, Benjamin B., Jr.	L., M.	St. Joseph	Buchanan
Wall, Cleola	E., H.	St. Joseph	Buchanan
Whitford, Emma	M., H.	Gullford	Nodaway
Williams, Charlotte	E., H.	Hiteman, Iowa.	
Willson, Maud	E., H.	St. Joseph	Buchanan
Word, Helen	E.	St. Joseph	Buchanan

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(* no card filed.)

C. AT JOPLIN.

Name.	Studies.	Postoffice.	County.
Allen, Ida	E., M.	Carl Junction	Jasper
Bales, Jessie	H., Hort.	Joplin	Jasper
Balsley, Clyde M.	H., M., E.	Joplin	Jasper
Barr, Edward	H., M.	Joplin	Jasper
Bell, Lola Ethel	H., Hort.	Joplin	Jasper
Bell, Margaret	M., E.	Joplin	Jasper
Benton, Ruth	Psy., M.	Webb City	Jasper
Bias, Malta	E., M.	Chitwood	Jasper
Board, Dollie	Hort.	Joplin	Jasper
Bodine, Mabel	M., H., E.	Joplin	Jasper
Boucher, Mabel	H., Ped.	Joplin	Jasper
Boucher, Esther	M., E.	Joplin	Jasper
Bradley, Ona E.	M., E.	Joplin	Jasper
Broadbent, De Etta	Ped., H.	Joplin	Jasper
Campbell, Leona Scott.	H., P.	Joplin	Jasper
Capp, Kate	M., E.	Webb City	Jasper

[illegible]

D. AT HOUSTON.

Name.	Studies.	Postoffice.	County.
Ballard, Nora	H., B.	Astoria	Wright
Beck, Leona	H., M.	Houston	Texas
Bell, Lucy	C.-G., M.	Houston	Texas
Brown, Elsy	E., M.	Oakside	Shannon
Carter, John M.	E., M.	Norwood	Wright
Coats, Leona	E., C.-G.	Lundy	Texas
Crosthwaite, Dora	E., M.	Roubidoux	Texas
Crow, J. G.	E., H.	Licking	Texas
Crow, Robert Walter	E., M.	Lenox	Dent
Denison, Amanda	E., M.	Licking	Texas
Dickerson, Belva Lola	E., M.	Stultz	Texas
Dunham, Emory	E., M.	Craddock	Phelps
Erwin, Gussie	E., M.	Houston	Texas
Farley, Verdle	E., M.	Houston	Texas
Fielden, Lucy	E., M.	Success	Texas
Fielden, Dora	E., M.	Success	Texas
Fielden, Agnes	B., H.	Turley	Texas
Fink, William Everette	M., H.	Licking	Texas
Fish, Alice	B., H.	Ladd	Texas
Fleenor, Joseph Blankenship	E., H.	Houston	Texas
Foster, Essie Victoria	E., M.	Houston	Texas
Fugate, Minnie F.	E., M.	Stultz	Texas
Fugate, Hanna E.	L., B.	Stultz	Texas
Garst, Harvey Oden	E.	Cabool	Texas
Gobble, Florence Bernice	E., L.	Kansas City	Jackson
Halbert, Eva	M., C.-G.	Licking	Texas
Halbert, Elsie	M., E.	Licking	Texas
Harmon, Nettle	B., M.	Houston	Texas
Harmon, Fred J.	B., M.	Houston	Texas
Harris, Jessie	E.	Summerville	Texas
Harris, Lottie	E., B.	Summerville	Texas
Hatch, Maude	E., M.	Licking	Texas
Hayes, Charles Arthur	E., H.	Houston	Texas
Henry, Mary H.	E., M.		Texas
Herndon, Marle	M., H.	Houston	Texas
Herndon, Ollie	E., H.	Houston	Texas
Herring, Belle	E., M.	Houston	Texas
Hicks, Jessie L.	C.-G., M., E.	Plato	Texas
Hill, Effie	E.	Licking	Texas
Hinkle, Ivla Eleanor	H.	Houston	Texas
Hinkle, Maurice	E., H.	Houston	Texas
Hinkle, F. Rollin	B.	Houston	Texas
Hubbard, Grace	B., H.	Houston	Texas
Hunter, Alvia J.	B., M.	Gravelpoint	Texas
Jadwin, Walter E.	L., B.	Houston	Texas
Jadwin, Mrs. Emma	L., B.	Houston	Texas
Johnson, Frank	E., M., C.-G.	Samoa	Texas
Johnson, Lemuel	E., M.	Yukon	Texas
Johnson, Lum	E., H.	Houston	Texas
Johnson, Otto A.	E., H.	Yukon	Texas
Kendall, Ora	E., M.	Mountain Grove	Wright
Killion, Katie	E., M.	Houston	Texas
Lane, Julia	M., C.-G.	Prescott	Texas
Lanier, Anna	E., M.	Licking	Texas
Lynch, William	B., E.	Turley	Texas
May, Gertie	E., M.	Turley	Texas
Meador, Ida	H., M.	Houston	Texas
Miller, Charles J.	M.	Grogan	Texas
Miller, Oliver	E., H.	Houston	Texas
Mitchell, Anna	E., M.	Licking	Texas
Morgan, Jesse Lee	E., M.	Stultz	Texas
Murrill, Daisy	M.	David	Texas
Mvers, Laura	E., M.	Ellis Prairie	Texas

Name.	Studies.	Postoffice.	County.
McGiboney, Cornella Francis.B., H.		Licking	Texas
McGiboney, Alpha	L.	Jonesboro, Ark.....	
McKinney, Hubbard E.	M.	Houston	Texas
Neal, Addie Eva	E. M.	Roubidoux	Texas
Neal, Ida Lena	C.-G., M.	Turley	Texas
Neal, Cella Frances	M., H.	Success	Texas
Nichols, Pearl	B., Ped.	Salem	Dent
Noe, Emma	E.	Houston	Texas
Owen, Marie	E., H.	Houston	Texas
Owen, Walter C.	C.-G., E.	Houston	Texas
Patterson, Fina	E., M.	Oscar	Texas
Payne, James Oscar.....	B., E.	Licking	Texas
Pearcy, Will	B., H.	Roubidoux	Texas
Pierce, Anna	M., H.	Houston	Texas
Pierce, Fanny	B., M.	Houston	Texas
Ramsey, Mary	M., E.	Roubidoux	Texas
Rhea, Zou	E., M.	St. Louis City.....	
Robertson, Lola	C.-G., M., E.	Licking	Texas
Rogers, Howard	M., E.	Oscar	Texas
Rutherford, James Arthur	E.	Houston	Texas
Scott, Mamie	E., M.	Turley	Texas
Shelton, Sarah	E.	Coulstone	Texas
Sherrell, Pearl	C.-G., E., M.	Clear Springs	Texas
Sherrell, Millard	B., E.	Clear Springs	Texas
Sherrell, Cora	M., C.-G.	Clear Springs	Texas
Simmons, Bertha.....	Ped., M., E.	Bado	Texas
Smith, Frank	E., M.	Solo	Texas
Smith, Bertha	E., M.	Solo	Texas
Smith, Henry	C.-G., M., E.	Solo	Texas
Smith, Harry R	E., M.	Houston	Texas
Smith, Nancy E.	E., M.	Turley	Texas
Smith, Rhoda	E., M.	Turley	Texas
Smith, Randle	M., E.	Turley	Texas
Snow, Levi Joseph	E., M.	Willow Springs	Howell
Steiner, James B.	C.-G., M., E.	Big Creek	Texas
Stenger, John W.	L., E.	Onasco, Okla.....	
Stephens, Chris. C.	E., M.	Willow Springs	Howell
Stephens, Cleveland ...	C.-G., M., E.	Willow Springs	Howell
Sutton, Ollie	E., M.	Samoa	Texas
Taylor, Talbert	E., L.	Houston	Texas
Tweedy, Nora	E., M.	Houston	Texas
Watson, Cloe E.	E., M.	David	Texas
West, Edward	E., L.	Houston	Texas
West, Georgia	E., M.	Houston	Texas
Wheeler, Verdle	C.-G., M., E.	Samoa	Texas
Williams, Elbert D.	E., M.	Licking	Texas
Willson, Carl T.	H., B.	Plum Valley	Texas
Wommack, Thomas Henry.C.-G., M.		Simmons	Texas

SUMMARIES

I. Enrollment by Departments.

I. GRADUATE:		VII. COLLEGE OF AGRICULTURE AND MECHANIC ARTS:	
Academic ..	45	(a) School of Agriculture:	
Agriculture ..	1	Graduate Students	1
Engineering ..	9	Seniors ..	5
Total ..	55	Juniors ..	18
II. ACADEMIC:		Sophomores ..	12
Graduate Students	45	Freshmen ..	24
Seniors ..	80	Specials ..	20
Juniors ..	108	Short Course (Animal Husbandry) ..	41
Sophomores ..	115	Short Course (Agr.)...	19
Freshmen	179	Short Course (Dairy)..	12
Specials.....	72	Total ..	147
Total.....	594	(b) School of Engineering:	
III. EDUCATION.....	100	Graduate Students	9
IV. LAW:		Seniors ..	35
Seniors ..	88	Juniors ..	54
Juniors ..	48	Sophomores ..	61
First Year ..	70	Freshmen ..	108
Specials ..	45	Specials ..	12
Total ..	196	Total ..	274
V. MEDICINE:		VIII. SCHOOL OF MINES (Rolla):	
Fourth Year ..	11	Graduate Students	8
Third Year ..	11	Seniors ..	31
Second Year ..	24	Juniors ..	50
First Year ..	84	Sophomores ..	35
Specials.....	3	Freshmen ..	64
Total ..	88	Specials ..	6
VI. MILITARY SCIENCE AND TACTICS ..	202	Total ..	194

II. Students in Gymnasium.

Men	485	Women	160
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III. Young Men and Young Women.

(a) Columbia:		Men	Women	(b) Rolla:		Men	Women
Regular Session.....	948	292				191	8
Summer Session.....	148	162					
Totals.....	1096	454		Columbia.....	1088	417	
Counted twice	58	51		Rolla	191	8	
Net totals.....	1088	417		Ttotals.....	1229	420	

IV. Total Enrollment.

Graduate Students	55
Academic	594
Education	98
Law	196
Medicine	83
Military Science and Tactics.....	202
College of Agriculture and Mechanic Arts {	
a. Agriculture..	147
b. Engineering..	274
Summer Session, at Columbia.....	810
School of Mines.....	194
Total	2149
Names counted twice	500
Total number of individual students	1649
Total number at Columbia.....	1455
Total number at Rolla.....	194

V. Counties Represented in the University.

Counties.	Summer Session	Regular Session	Rolla	Total
Adair..	5	8	1	14
Andrew.....	4	6		10
Atchison.....	2	4		6
Audrain.....	8	28		36
Barry.....		2	1	8
Barton	2	6		8
Bates.....	5	9		14
Benton....	1	4		5
Bollinger.....	1	1	1	8
Boone.....	55	225		280
Buchanan	67	19		86
Butler		2		2
Caldwell.....	2	11		13
Callaway	1	5		6
Camden.....				
Cape Girardeau ..	2	1	1	4
Carroll.....	4	12		16
Carter.....				
Cass.....	3	11		14

Counties	Summer Session	Regular Session	Rolls	Total
Putnam	1	6		7
Ralls.....		5		5
Randolph.....	8	16	1	25
Ray	1	8		9
Reynolds.....				
Ripley.....		2		2
St. Charles.....	1	5		6
St. Clair	1	8		9
St. Francois.....	2	5		7
Ste. Genevieve.....				
St. Louis.....	6	12	5	23
Saline.....	4	23		27
Schuyler.....		6		6
Scotland.....	1	3		4
Scott		1		1
Shannon	2			2
Shelby.....	4	5		9
Stoddard.....	2	7		9
Stone.....				
Sullivan		3		3
Taney.....			1	1
Texas	97	4	1	102
Vernon.....	4	14	1	19
Warren		3		3
Washington.....		6		6
Wayne.....	1	2		3
Webster.....		1	2	3
Worth.....	1	2		3
Wright.....		3		3
City of St. Louis.....	15	41	20	76

VI. States, Territories and Foreign Countries Represented in the University.

States	Summer Session	Regular Session	Rolls	Total
Alabama		4		4
Arkansas.....	6	20	2	28
California.....	1	5	2	8
Colorado		5	12	17
Connecticut.....				
Delaware.....				
Florida		1	1	2
Georgia.....		1		1
Idaho.....			1	1
Illinois.....	3	31	6	40
Indiana		5	3	8
Iowa.....	3	18	8	29
Kansas.....	3	20	10	33
Kentucky.....	1	5	1	7
Louisiana.....		4		4
Maine		1		1
Maryland.....		1		1
Massachusetts.....	1	5		6
Michigan.....		2	3	7
Minnesota.....				
Mississippi.....		3		3
Missouri.....	608	938	105	1646
Montana.....		1		1
Nebraska		5	3	8
Nevada			1	1

States	Summer Session	Regular Session	Rolls	Total
New Hampshire.....		2		2
New Jersey.....		1		1
New York.....	1	9	5	15
North Carolina.....		2		2
North Dakota.....			1	1
Ohio.....	2	3	3	8
Oregon.....				
Pennsylvania.....	1	12	4	17
Rhode Island.....			1	1
South Carolina.....		1		1
South Dakota.....		1	1	2
Tennessee.....	1	3	2	6
Texas.....	3	3	4	15
Utah.....		2	1	3
Vermont.....		1		1
Trinidad.....			1	1
Virginia.....		3	1	4
Washington.....	1	1		2
West Indies.....			1	1
Wisconsin.....			1	1
Wyoming.....		1		1
Argentine Republic.....		2		2
Canada.....		1		1
China.....		1		1
Cuba.....		1		1
Egypt.....		1		1
Porto Rico.....		1		1
Arizona.....			3	3
Indian Territory.....	2	6	1	9
New Mexico.....	1	1	1	3
Old Mexico.....		1	3	4
Oklahoma.....	2	6	1	9
Japan.....	1			1

CERTIFICATES, DEGREES AND HONORS, COMMENCEMENT, 1908.

(A). COLUMBIA.

I. CERTIFICATES.

Department of Military Science and Tactics.

Charles Arthur Cole.	Nelson Burr Harrison.
Redmond Selecman Cole.	Charles Norris Hartwell.
Clark Wesley Comstock.	Charles Henry Hechler.
Edward Cartwright Constance.	Floyd Burke Riley.
William Harris Floyd, III.	Fred William Jey Schulze.

Department of Education.

Life Certificates.

Minerva May Babb.	Alice Ethel Massie.
James Claud Baird.	William Frederic Miller.
Beulah Norvelle Baker.	Henry Thomas Moore.
Mary Jessie Barnett.	Fannie Nowell.
Frank Adolph Bernstorff.	Eva Lorena Packard.
Lake Brewer.	Flora Mary Schlierholz.
Charles Collins.	Charles J. Sloop.
Laura Henry Dashiell.	Jessie A. Smith.
Homer Jason Davis.	Oliver Lee Steele.
Clarabel Denton.	Carolyn Stoner.
Tom Montgomery Ellis.	Maggie Lou Stump.
Nellie Gray.	William Tenent Vander Veer.
Goldy Mitchell Hamilton.	Mary Shore Walker.
Ernest Albert Irvine.	Robert Ernest White.
Clara May Barbara Koch.	Isabella Austin Winslow.

II. DEGREES.

School of Engineering.

1. *Degree of Bachelor of Science in Civil Engineering (B. S.).*

Arthur Barrett.	Erith Evert Lushbaugh.
Milo Hamilton Brinkley.	Frank Cecil Magruder.
Robert Calvin Cochel.	Thomas Benton Perry.
Thomas Edwin Hunter.	Ernest Franklin Robinson.
Charles Thomas Jackson.	William Ernst Smith.
Henry Schwing Kleinschmidt.	Edward Zorn.

2. *Degree of Bachelor of Science in Electrical Engineering (B. S.).*

Leo Brandenburger.	James Arthur Hook.
Edward Andrew Briscoe.	Charles Rufus Ringer.
John Alvin Brundige.	Burns Stewart.
William Woodson Harris.	

3. Degree of Bachelor of Science in Mechanical Engineering (B. S.).

Thomas Jefferson Craig.
 Albert Knabe.
 DeWitt Talmage Rice.

William Benjamin Rollins.
 Earl Brenton Smith.

Department of Medicine.***Degree of Doctor of Medicine (M. D.).***

Karl Edgar Baker.
 Elexious Thompson Bell.
 B. S., U. of Mo., '01.
 George Henry Cassity.
 William Marvin Cole.
 James Adderson Crockett.
 Henry Clay Freudenberger,
 B. L., U. of Mo., '00.

Frederick Otto Kapa.
 Thornton Easley Moore.
 Harry Claucet Payne.
 Peter Potter,
 B. S., U. of Mo., '01.
 William Fred Stahl.

Department of Law.**1. Degree of Bachelor of Laws (LL. B.).**

(The Department of Law presents no Candidates for the Degree of Bachelor of Laws (LL. B.), the course leading to that Degree having been extended, at the beginning of the Session of 1902-03, from Two Years to Three Years.)

2. Degree of Master of Laws (LL. M.).

Stonewall Jackson Walton, LL. B., U. of Mo., '02.

School of Agriculture.***Degree of Bachelor of Agriculture (B. Agr.).***

Job Marcus Doughty.

Walter Mitchell Krafft.

Degree of Bachelor of Science in Agriculture (B. S. in Agr.).

Luther Winchester.

Academic Department.**1. Degree of Bachelor of Arts (A. B.).**

Henry Wesley Allinger.
 Minerva May Babb.
 James Claud Baird.
 Beulah Norvelle Baker.
 Mary Jessie Barnett.
 Louis Levy Barth.
 William Godfrey Bek.
 Bessie Brown Bond.
 Edmond Bonnot.
 Earl Bradsher.
 Lake Brewer.
 Robert Breckenridge Caldwell.
 Jacob Chasnoff.
 Charles Collins.

Homer Jason Davis.
 Clarabel Denton.
 Henry Edgar Draper.
 Joseph Dolliver Elliff.
 Tom Montgomery Ellis.
 Claude Chester Fogle.
 William Hammack Goodson.
 Nellie Gray.
 George W. Hageman.
 Goldy Mitchell Hamilton.
 William Henry Hays.
 Jacob Wilhelm Heyd.
 Walter A. Higbee.
 Jesse Franklin Hogan.

Ernest Albert Irvine.
 Clara May Barbara Koch.
 Virgil Loeb.
 Collier Alden Lowe.
 Andrew Walker McAlester.
 Richard Hiram McBaine.
 Alice Ethel Massie.
 William Frederic Miller.
 Henry Thomas Moore.
 Ira David Mullinax.
 William Thompson Nardin.
 Fannie R. Nowell.
 Thomas Edward O'Connor.
 Frederick Benjamin Owen.
 Eva Lorena Packard.
 Henning Webb Prentiss, Jr.
 Jephtha Riggs.
 Charles Bradford Rodes.

Flora Mary Schlierholz.
 Charles J. Sloop.
 Oliver Lee Steele.
 Edwin Sydney Stephens.
 Ira Thomas Gabbert Stone.
 Carolyn Stoner.
 Fred Erwin Storm.
 Maggie Lou Stump.
 Harold Clark Thurman.
 Joseph Anthony Vaeth.
 William T. VanderVeer.
 Mary Shore Walker.
 Howard Welch.
 John Gunn Welch.
 Robert Ernest White.
 Isabella Austin Winslow.
 Rowan Buchanan Wornall.
 Blanche Younker.

2. Degree of Master of Arts (A. M.).

Charles Clifford DuBois,
 A. B., U. of Mo., '02.
 Talltha Jennie Green,
 A. B., U. of Mo., '01.
 Maud Ellis Montgomery,
 A. B., U. of Mo., '02.

Thomas Benton Perry,
 B. S., U. of Mo., '98.
 Peter Potter,
 B. S., U. of Mo., '01.
 James Edward Tuthill,
 A. B., U. of Chicago.

Honorary Degree of Doctor of Laws (LL. D.).

William Trelease.

III. PRIZES, MEDALS, SCHOLARSHIPS, AND HONORS.

The Dachselt Prize (Engineering). (Not Awarded.)

The Prize Essays, Department of Law.—First. (Not Awarded.)
 Second. (Not Awarded.)

The William J. Bryan Medal (Political Science). (Not Awarded.)

The William S. Woods Prize (Missouri History). Thomas K. Smith.

The Laws Medal (Astronomy). (Not Awarded.)

The McAnally Medal (English). Earl Bradsher.

The Military Cup. Company C, Capt. William F. Miller.

The Military Medal. Private Asa Leroy Carter.

The Marksmanship Medal. (Not Awarded.)

The Stephens Medal (Oratory). Harold Clark Thurman.

The James S. Rollins Scholarship, Department of Medicine, Eugene Park Cowgill.

The James S. Rollins Scholarship, Department of Law. (Not Awarded.)

The James S. Rollins Scholarship, College of Agriculture and Mechanic Arts (School of Agriculture). Lewis William Thielemann.

The James S. Rollins Scholarship, College of Agriculture and Mechanic Arts (School of Engineering). Arthur Robert Eltzen.

The James S. Rollins Scholarships (Two), Academic Department, A. B. Forrest C. Donnell, and Helen Alberta Sewall.

The Honor of Valedictorian in the Law Department not awarded, there being no Graduating Class.

The Honor of Valedictorian in the Medical Department, awarded Thornton Easley Moore.

The Honor of Valedictorian in the College of Agriculture and Mechanic Arts (School of Engineering) awarded William Benjamin Rollins.

The Honor of Valedictorian in the College of Agriculture and Mechanic Arts (School of Agriculture) awarded Job Marcus Doughty.

The Honor of Valedictorian in the Department of Education awarded Mary Shore Walker.

The Honor of Valedictorian in the Academic Department awarded Henry Thomas Moore.

The following Certificates, Degrees, Etc., have been conferred since the last Commencement—June, 1908.

The James S. Rollins Scholarship, Department of Law, awarded Virgil Hicks.

Life Certificate, Department of Education, awarded Maud Montgomery, Belle McCaleb, and Blanche Younker.

Degree of Doctor of Medicine (M. D.), awarded Stephen Vincent Bedford.

Degree of Bachelor of Arts (A. B.), Harry Borgstadt, Mrs. Della Rodgers Maddox, Belle McCaleb, Takeshi Okubo, Otto Reinhold Patzward, and Perry Riley Price.

Honorary Degree of Doctor of Laws (LL. D.), awarded Hon. Joseph Van Cleve Karnea.

(B). *ROLLA, MISSOURI.*

I. CERTIFICATES.

Special Course in Mining.

Joseph Washington Draper.
Frederick Thomas Fish.

Elmer Cooper Heck.

Special Course in Chemistry and Assaying.

Oren Paul Richards.

Special Course in Surveying.

Oren Paul Richards.

II. DEGREES.

1. *Engineer of Mines.*

James Clark Draper.
John Rogers.
Rulof Theodore Rolufs.
William Melvin Weigel.

John Adrian Garcia.
Walbridge Henry Powell.
Jerrold Roscoe Underwood.
George Woodhall, Jr.

2. *Civil Engineer.*

Isaac Peter Fraizer.

3. Metallurgical Engineer.

Daniel C. Jackling.

4. Bachelor of Science (Mine Engineering).

Raphael Currier Alexander.

William Harris Gill.

Frank Rolla Bell.

Lewis Sublette Logan.

Eugene Victor Schulze.

Francis Henry Walsh.

Arthur Ignatius D'Arcy.

Samuel Marshall Greenidge.

Frederick Hauenstein.

Herbert Arno Roesler.

Frank Weidner.

5. Bachelor of Science (Civil Engineering).

Walter Adams Luther.

Royal Sylvester Webster.

John Edward Walker.

Cornelius Mark Dally.

APPENDIX

SUMMER SESSION OF THE UNIVERSITY 1904

The following courses will be offered:

Agriculture and Horticulture, one course.	Geology and Physiography, three courses.
Botany, three courses.	Greek, two courses.
Chemistry, two courses.	History, five courses.
Economics, one course.	Latin, five courses.
Education, ten courses.	Manual Training, three courses.
English, four courses.	Mathematics, six courses.
Freehand Drawing, two courses.	Music, two courses.
French, two courses.	Physics, four courses.
German, three courses.	Zoology, three courses.

The Summer Session will open on Thursday, June 2, and continue until Tuesday, August 2. There will be one term of eight weeks exclusive of registration and examination. The Courses are arranged primarily with a view to the needs of teachers, and the time of the Summer Session has also been adapted to them. Every teacher in the State can afford to study during June and July, if he will but take the month of August for recreation before beginning the work of next year.

There are no formal examinations for admission. Students are admitted to such Courses as they are prepared for. A sufficient variety of Courses is offered to meet the needs of all teachers, whether engaged in elementary or secondary instruction. All Courses will be credited toward the degree and Certificates from the Teachers College, and most of them will also be credited toward the A. B. degree.

The grades made in the Summer Session are accepted by the State Superintendent and by County Boards in lieu of examinations for teachers' certificates. Practically every subject that is accredited on Five Years' Certificates and Life Certificates is offered in this Summer Session.

The fee for admission is \$5 for the entire Summer Session. Each student who takes laboratory work in Agriculture and Horticulture, Botany, Chemistry, Physics, or Zoology is required to make a deposit of \$5 with the Secretary of the University to cover laboratory fee of \$2.50 and damage to or loss of University property.

Good board, including room and service, may be had in private families at from \$3 to \$4.50 per week. If the students choose to organize themselves into a club the expense of living may be much reduced.

All the railroads of the State for four summers have granted a rate of one fare and one third for the round trip, and it is expected that the same arrangements can be made this year.

For further information in regard to the Summer Session, and for Circular of the Summer Session of 1904, address

A. Ross HILL, Director,
Columbia, Missouri.

SUMMER SESSION OF THE UNIVERSITY 1908

The following courses were offered:

Agriculture, one course.

Biology, three courses.

Chemistry, two courses.

English, three courses.

Freehand Drawing, two courses..

French, two courses.

German, three courses.

Greek, three courses.

History, four courses.

Horticulture, one course.

Latin, four courses.

Mathematics, four courses.

Manual Training, two courses.

Physics, two courses.

Pedagogy, one course.

Psychology, one course.

The Summer Session opened on June 1 and closed on August 28. It was divided into two terms of six weeks each, exclusive of registration and examination. There were 310 students and teachers in attendance. Dr. J. C. Jones was Director during the first term, and Professor M. L. Lipscomb was Director during the second term.

In addition to the Summer Session of the University at Columbia, the University conducted Branch Summer Schools at Houston, Joplin, and St. Joseph where a total of 329 students were enrolled. Part of the work offered in the branch schools was below University grade, so the attendance is not reckoned in the number of those who attended the University during the year.

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